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Report of the Science and Protection Task Force

A Report to the Canadian Parks Service Western Region Management Committee April 1990.

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REPORT OF THE SCIENCE AND PROTECTION TASK FORCE

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SUBMITTED TO:

THE REGIONAL MANAGEMENT COMMITTEE

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EXECUTIVE SUMMARY

The Science and Protection Task Force was commissioned to provide objectives and goals that can be incorporated into the Western Region's strategic planning exercise. The intent was to propose recommendations that will provide direction and priorities for managers who, in turn, must develop the detailed schedules and costing for implementation.

An introduction and brief discussion of the basic principles or assumptions which underlie the recommendations are presented and in particular address the need to recognize that resource protection and management is not the exclusive responsibility of any one sub-activity but is a concern and responsibility of all park employees. Another important principle is that the recommendations must build on the organization's strengths and not detract from them.

Chapter 2.0, The Future describes the scientific and environmentally related trends that will impact on western region in the decade ahead and beyond. Chapter 3.0 presents recommendations with some discussion. An analysis of these recommendations by benefit, cost and implementation priority is presented in the next chapter. The concluding Chapter 5.0 describes a general framework for action.

The Task Force convened in early January 1990. Interviews were scheduled with over fifty (50) staff at universities, within the Department of Environment, other government agencies, the United States National Park Service and the private sector. The recommendations were then compiled in a draft document which was reviewed by an Advisory Committee and some members of the Regional Executive Committee. The necessary revisions were made and this report produced in April 1990.

The 129 recommendations presented all contribute to the challenge of developing credible science and credible resource protection. Many will assist the CPS WR as it addresses priorities that will arise from the departmental Green Plan.

The issue of global change will dominate the environmental scene as will the requirement to develop and demonstrate leadership in environmental friendly practices and pollution reduction. The process of encroachment by incompatible land uses is the largest single threat to the western national parks and will require identification of threats and an understanding of socio-economic as well as ecological factors. Ecological integrity and sustainability are the basis for future park management, and drive the need to conduct scientifically based resource management.

The cornerstone of the Green Plan and CPS WR park management is better science. A commitment to the development of science and expanded liaison with the research community is needed, as is the elimination of barriers that inhibit research activities. Science as it pertains to the management of natural resources will be coordinated by, and be fully integrated into, the Warden Service.

Fundamental to scientific credibility is the establishment of specialists within the Warden Service, formal peer review, and participation in professional forums.

Implementation of technological advances is needed to support the analysis of resource management data. Although initial investments appear substantial, savings will accrue through reduction in time spent in data management.

Recommendations regarding linkages with other DOE Services and other government departments are provided and point to opportunities where CPS WR would be a recipient of benefits, could contribute to other agencies and to where mutual benefits would be received. Unique opportunities to demonstrate leadership exist.

Although the CPS WR's application of EARP is one of our strengths and has considerable credibility with others, several improvements are suggested including a team approach involving other sub-activities and developing a working group to allow expertise to be shared among parks. Current efforts to develop EARP as a science are noteworthy.

The current park zoning system will have to become more sophisticated to enable it to be used as a tool to better protect and manage our resources. In addition, the CPS WR must balance prevention, deterrence and prosecution in its law enforcement activities. The establishment of a working group, an advisory forum and law enforcement specialists will expedite credibility and may in the long term reduce our training costs.

An implication of the Green Plan and this report is a shift in emphasis in our public programs towards environmental education.

Review of the recommendations show that almost all have implications for functional responsibilities. The report describes a variety of functional disciplines that should be strengthened and others that should be adjusted. A variety of regional responsibilities are set out.

A first step is recommendation #127 calling for a comprehensive human resource plan addressing the establishment and staffing of specialist positions and improvements in regional functional responsibilities.

ACKNOWLEDGMENTS

Task Force members would like to acknowledge WRO staff for their hospitality, assistance and constructive comments during preparation of this report. In particular, thanks to Steve Logan, Don Rumpel and George Fisher for supplying informatics assistance; Bryan Potter and Larry Tan for providing transportation and office materials; Duane Martin and Conrad Clement for their important contributions to the law enforcement and human resources sections; Ross MacDonald for creating report graphics; and David Boves for shepherding us along our path.

Particular thanks is extended to all those who gave us their time and thoughts during formal interviews and informal discussions. Without this valuable input, this report could not have been accomplished. Everyone we spoke with enthusiastically supported Canada's park system and endorsed CPS WR efforts to improve our science and protection.

1.0 INTRODUCTION

1.1 PURPOSE

The Strategic Plan gives broad overall direction for the protection of natural resources. An outcome of the strategic planning exercise was acknowledgment of the need for more specific recommendations to the RMC to ensure that mandated CPS objectives and regional strategic priorities are met. The science and protection task force was commissioned to provide objectives and goals that can be incorporated into the strategic planning exercise.

The intent of the Science and Protection Task Force was to propose recommendations that are useful to the organization as a whole and can be generally applied to all Parks. The report was not intended to be a detailed time/action plan. Rather, it will provide direction and priorities for managers who, in turn, must develop the detailed schedules and costing for implementation. Specifically, these recommendations will have to be considered along with those from other task forces and in turn, incorporated by the Regional Management Committee into strategic planning documents (e.g. The Reality Document).

The Science and Protection Task Force was to:

1. Describe anticipated challenges relating to natural resource research, natural resource management and natural resource protection that will face CPS WR in the mid to late 1990's.

2. Define CPS Western Region's future role in the development and application of science in the management of natural resources in national parks, the use of national parks as ecological benchmarks and as sites for the conduct of natural resource related research, and the protection of natural resources in national parks.

3. Define internal and external relationships, organizational models, resourcing levels, and infrastructure required to implement the roles described above.

4. Propose a framevork that will guide managers in the development of detailed actions for implementation of strategic objectives concerning the protection of heritage resources.

1.2 BACKGROUND

To assist in the establishment of a strategic planning framevork for the Canadian Parks Service Western Region (CPS WR) a number of task forces were established to analyze specific areas of concern. Terms of reference for the Science and Protection Task Force are presented in Appendix A. The Task Force consisted of Charles Zinkan

(Superintendent, Waterton Lakes National Park), Gail Harrison (Research Associate, Natural History Research Western Region), Alan Westhaver (Senior Park Warden, Elk Island National Park), and Darro Stinson (Assistant Chief Park Warden, Jasper National Park). Glenn Webber (Interpretation Specialist, Western Region) later joined the Task Force to complete the investigation of specific issues. An Advisory Committee was established as outlined in the terms of reference.

Overlap with the responsibilities of two other regional task forces (Cultural Heritage, and Parks and People) became apparent and resulted in the narrowing of considerations to issues related to natural resources (as compared to cultural resources) and to areas where social trends create protection concerns (as compared to the broader strategic objective of Stewardship).

This report's conclusions are recommendations to the Regional Management Committee and as such do not represent the position of Western Region at this time. An introduction and brief discussion of basic principles or assumptions which underlie the recommendations are presented. It is followed by 2.0 The Future, which describes the scientific and environmental trends that will impact on western region (WR) in the decade ahead and beyond. Chapter 3.0 is the discussion and presentation of recommendations. Chapter 4.0 Analysis, deals with the priorization and implementation of the recommendations. Recommendations are analyzed by relative benefit, cost, and relation to the Destiny Document. The concluding chapter, 5.0, describes the inter-relationships of the critical recommendations and provides a general framework for action.

1.3 METHODOLOGY

The Task Force convened in early January 1990. A questionnaire format was devised to explore issues, future trends, etc. which could impact on how CPS protects and manages its natural resources. Over 50 interviews were scheduled during a six week period with staff at universities, with Department of Environment (DOE), other government departments (OGDs), Glacier National Park (USNPS) and the private sector. Opportunities for input from line staff from all sub-activities occurred as the Task Force visited most parks, met with regional staff and through input of the Advisory Committee. The information obtained through the interviews was supplemented with a limited literature review. With the different perspectives of the Task Force members. a variety of recommendations and conclusions were developed and presented in an initial draft document reviewed by the Advisory Committee and some members of the Regional Executive Committee (REC). Revisions to the draft were then incorporated and the final report was submitted to the Regional Management Committee (RMC).

1.4 BASIC PRINCIPLES AND ASSUMPTIONS

A number of basic principles and assumptions underlie the rationale of the recommendations and are presented here to provide a broad context and to reduce repetition.

Resource Management and Protection - Everybody's Business

It must be recognized that **the protection of our heritage resources is not the responsibility of one sub-activity.** Stewardship, where all CPS staff share in this responsibility, will only be achieved through an effective, cooperative and coordinated effort thus ensuring our mandate to leave the resources unimpaired for future generations.

Building On Our Strengths

The Task Force intentionally developed all of the recommendations in a manner that recognizes the achievements and strengths of our organization and that builds on these strengths rather than detracts from them. Although changes are recommended in order that the CPS WR will be proactive and effective in dealing with issues that will arise in the decade ahead, the changes are not criticisms of past achievements.
The majority of people interviewed by the Task Force offered praise, and opinions regarding existing strengths of resource protection efforts. Many expressed the view that the CPS WR provides a high degree of protection to the resources given the PY and $ allocated and the multiple responsibilities of CPS and the Warden Service. They perceive this to be the result of the strong commitment of employees.

Three programs were repeatedly identified as outstanding; EARP, public safety and public consultation. Within DOE and the academic community it is widely acknowledged that the CPS WR excels in the application of EARP. Special commendations were expressed for the quality and scientific credibility of the larger EARP undertakings involving public hearings. Many people interviewed gave special recognition to the public safety function as a section of Resource Conservation which has attained an exemplary degree of professionalism and positive public image by conducting credible field operations. Our willingness to share information and decisions through public participation and professional interactions is viewed as contributing to our credibility.

There was unanimous enthusiasm for the strategic planning initiative and the task force goal of enhancing the current level of protection of natural and cultural resources through science. The CPS was applauded for requesting external input into this process.

There are common threads within our successes that can be used to develop models for future excellence in other CPS programs. These are; staff commitment, accountability, team approach, professional credibility, management commitment, peer review/information sharing and adequate resourcing.

Being Proactive Rather Than Reactive

Often someone would say to a task force member "did you consider this problem" or "what about this situation in a certain park". By adopting a strategic approach to this project, the task force concentrated on the trends and challenges that will confront the CPS WR in the future, rather than focusing on problems or issues that irritate us today. As we explored the future challenges we realized that many of today's concerns are symptoms and not the problem (e.g. the need for marine biological expertise is symptomatic of our need for a variety of resource management expertise). By proactively dealing with the future the irritants of today will also be addressed.

Becoming proactive will require "that we have time to do it." There is a pervading feeling that we have too much work to do and not enough time to do it. Clear priorities and a willingness to discard or change some of our current work load are essential.

Fiscal Reality

It is apparent that a relatively small portion of resources are dedicated to the protection of heritage resources. In all cases there is insufficient staff time and resources available to deal with the resource management issues now facing the parks. For example, many parks only undertake resource management plans with supplementary O&M project funds and insufficient O&M resources are in place to implement these plans. This is indicative of the lack of an adequate resource base which will only become more acute with the challenges that lie ahead.

The budgets for resource conservation (including all public safety, law enforcement and resource management) in Western National Parks amount to 8% to 28% of each park's total budget (Appendix C). When revieving these figures it must be kept in mind that certain types of expenses (e.g. trail maintenance) are allocated to Resource Conservation in some parks and not in others. These figures do not include the contribution of other sub-activities to resource management and protection. But two things are evident - only a small amount of our resources goes to our primary mandate, resource protection; and there is no consistency in budget allocation from park to park.

Recommendations requiring additional resources have been put forward with caution and presented in terms of benefit/cost and contribution to achieving the strategic objectives. It is recognized that the program will face continued fiscal restraint through the 1990's. Although some resources may be provided for initiatives such as new park establishment or specific initiatives such as environmental messages, it is assumed that resources required to change and improve current programs will be limited and will primarily be made available through reallocation within the CPS WR.

Will Better Science Be the Solution?

There is a large gap between scientific knowledge and research and its application in park management. It is clear that sound holistic ecological and scientific theory and data must be integrated into all CPS decisions. Although additional data will be required to make informed decisions, ecological understanding in itself will not lead to good decisions.

Many of the issues that will confront the CPS WR will be driven by socio-economic factors and not only by resource management concerns. When responding to those issues the CPS will have to understand and prove the impact on the resources and will have to present and understand arguments based on hard socio-economic data.

The departmental Green Plan reinforces the need for better science, the need for good information dealing with environmental and economic related factors. **The challenge is to increase the amount of decision-making inputs that are based on scientific natural resource and socio-economic data and analysis while reducing those dependent upon intuition.** Nevertheless, hard policy and science data will still be confronted by political and social pressures. Also scientific data can be interpreted differently and may not provide a black and white ansver.

What Is Credibility?

Credibility is not just improved relations with the scientific community or the development of scientific expertise, it is the end result of numerous improvements in all areas of resource management, protection, research and communication. Credibility is being competent, and professional in applying the scientific method to the natural resource decision making process.

1.5 DEFINITIONS

Other government departments (OGDs): government departments (both provincial and federal other than DOE).

Resource management: application of scientific processes, models and or technical processes to address and resolve a natural resource problem or meet a defined goal. It may involve active manipulation or deliberate non-intervention. Management must also involve monitoring in order to determine if goals have been achieved.

Resource related research: application of scientific theory (existing) through experimental design to determine the validity of a hypothesis, and/or the development of nev scientific theory or technology.

Science Policy: direction guiding the management of research activities in the CPS WR.

Science Committee: a committee consisting of representatives of the CPS WR and CPS specialists from multi-disciplines that coordinate the WR program of research projects. A variety of Science Advisory Forums will provide input to the Science Committee.

Science Advisory Forum: a forum consisting of representatives of the CPS, other government agencies and universities which help guide the application of science policy, give direction to CPS research needs, review research activities and recommend allocation of funds for research activities.

Warden Service: the national park cost center responsible for resource management (cultural and natural), public safety and law enforcement.

Warden Generalist: a park warden with operational responsibilities in two or more areas such as public safety, resource management or law enforcement. Minimum entry level - 2 year resource management diploma

Warden Specialist: a park warden with responsibilities committed to one function such as resource management, law enforcement or public safety for at least 70% of the time. A specialist will require additional training, expertise or knowledge as compared to a generalist.

- Minimum qualification - resource management specialist - under graduate degree in related sciences with experience in experimental design and application. Professional classifications (i.e. BI, PO, etc.) are anticipated.

- Minimum qualification - law enforcement or public safety - training and experience in area of specialization (to be defined).

Working Group: a group of CPS WR personnel who meet regularly to develop regional consensus on a specific area of concern e.g. the wildlife management working group.

2.0 THE FUTURE: ISSUES AND TRENDS

A fundamental stage in the development of a strategic plan is to examine the anticipated challenges that the years ahead will bring. With a common understanding of those challenges the CPS WR can then define strategies to proactively address the issues/problems/opportunities that will arise, thus ensuring the protection of the heritage resources. The following presents a vision of the decade ahead and is based on the ideas of over 50 scientists, academic staff and resource managers and on a limited literature review. Many of those interviewed have, or are already, experiencing the challenges the CPS WR will be facing. Discussion of these emerging challenges is presented under the following headings;

- Global Change
- Island Isolation
- Regional Integration
- Ecological Integrity
- Science
- Technology
- Relations With OGDs and DOE Services
- EARP
- Administrative and Management Processes
- Law Enforcement
- Public Interface
- Human Resource Management

Although Human Resource Management is presented at the end of the future discussion, that position by no means represents its priority. Human Resource Management is a common cord, drawing together all the preceding sections and is presented at the end as it will be the essential ingredient in implementing all actions.

2.1 GLOBAL CHANGE

Two outstanding global environmental trends are apparent; climatic change and pollution. Both are subject to considerable debate and increasing precision as new information regarding these phenomena is collected - their effects on natural resources are, however, undeniable. Some effects are readily forecast, while others are unlikely to be predicted prior to their occurrence. Yet other effects will result from the synergistic effect of combined changes. **Addressing global change will be a major emphasis of the emerging Green Plan.**

Climatic Change

Global warming caused by the changing composition of the earth's atmosphere will result in pervasive changes to temperature and precipitation regimes causing subsequent changes in the ecosystems and fundamental ecosystem processes. Significant changes in water,

vegetation and wildlife components will likely occur faster than species can adapt. Sudden loss of native species, increases in exotic plant species, outbreaks of forest insects and disease and modified watershed and fire regimes are problems that will challenge managers. An increase in warming will occur although estimates of the magnitude are now more conservative than those of a decade ago. Predictions are that WR parks will experience a 2 to 4 degree Celsius increase over the next five decades. Prediction for changes in precipitation are less precise but a decrease in summer precipitation and an increase in winter precipitation is anticipated. Changes will not occur gradually but will result in drought and flood peaks.

Pollution

The presence of toxic substances in air, water and soils of park lands will present a combination of acute and chronic impacts. Although fewer surprises from new substances are expected, the cumulative and combined effects of chemical deposition and exposure over time (from sources internal and external to parks) will continue to be revealed (e.g. P.C.B. discoveries and leaching from landfill sites). Toxic exposure will impact humans as well as natural resources and hence, it is assumed that future research efforts may focus on public health concerns at the expense of resources available for investigation of natural resource impacts.

2.2 ISLAND ISOLATION - INCREASING VALUE OF RESOURCES

There is a gradual trend for parks to become isolated islands of essentially "natural" landscape surrounded by areas where land uses and management policies are increasingly in contrast and less compatible with park objectives. Resource extraction and conversion of land to purposes incompatible with wilderness values will continue to shrink the availability of natural plant communities and wildlife habitat adjacent to national parks. Natural trans-boundary movements of organisms ranging from elk and wolves to spruce budworm and liver fluke will present increasing conflicts with neighbouring land use priorities. Although currently considered an anomaly, Elk Island may be a window to future regional conflicts for many western parks. **The process of encroachment by incompatible land uses is the largest single threat to the ecological integrity of western national parks.**

As parks become "islands" the relative value of the resources contained within them (already recognized as having global significance) will continue to increase. Two major trends will result. First, there will be increased demand by other resource "clients" to utilize park resources in non-conforming ways (e.g. water for hydroelectric and irrigation purposes, land for a multitude of recreational opportunities, old-growth forests for logging and fiber production, wildlife for trophy and sport opportunities). Second, the value of National Parks as ecological benchmarks (reminders of natural conditions and indicators of general environmental health) will increase dramatically for scientific researchers as well as the general public.

2.3 REGIONAL INTEGRATION

Park boundaries were established politically and geographically, not on the basis of ecological information or criteria. On a regional scale, the encroachment of industrial, agricultural and recreational activities towards National Park boundaries is the cause of several important trends. **It is clear that no single park, or block of contiguous parks, is large enough to contain or protect all ecological components or processes of the natural region it was set aside to preserve.** Although adverse impacts will occur, this circumstance also provides the justification for joining with our neighbours in integrated approaches to managing and preserving the ecosystems represented within the western parks and their neighbouring lands.

The CPS will experience increasing public, professional and legal scrutiny in its decision making. Consequently the CPS will have to promote a more open and communicative style of management if conflicts between users, managers, developers and the public are to be resolved to the betterment of the parks and their mandate.

Increasingly, park management processes must be geared towards more interaction between national parks/sites and adjacent land users and land management agencies. Coordinated processes for planning and management are being developed elsewhere that could be adopted by the CPS. There is a well established trend in the USNPS, born of long term pressures of encroachment, to become pro-actively involved both as a cooperator and an intervenor in the management of lands adjacent to park lands or within reach of the perceived ecosystem boundaries of park resources. At Great Basin National Park in Nevada a sophisticated and adaptive process to resolve regional land issues called "coordinated resource management" (CRM) has been developed (Anderson and Baum, 1988). Glacier National Park, Montana has even gone so far as to place a state employee on their management team for the express purpose of resolving regional integration issues and facilitating liaison and cooperation with park neighbours.

Overall, it is readily apparent that the CPS, Western Region has not followed the trend of American parks in establishing strong linkages with adjacent land managers. Adopting this approach will be necessary to buffer the impacts occurring at or near park boundaries. Some worthy exceptions are the initiative of Kootenay National Park to establish joint management of a bighorn sheep population with the Province of British Columbia and the Waterton Biosphere Program which may lead to future joint management actions.

New park establishment will lead to complicated cooperative management regimes with land use agencies and native organizations.

2.4 ECOLOGICAL INTEGRITY AND SUSTAINABILITY

There is, and will continue to be, a trend towards increasing man caused disturbance of park ecosystems. External influences have been described above. Conditions in parks will become less "natural" as internal influences such as national transportation corridors, developed areas, visitor activities and the inhibition of natural processes (e.g. wildfire, predation and migration) become increasingly pervasive. In addition to the direct impacts, erosion of the value of the remaining landscape as habitat will occur.

Several trends in the application of biological theories relevant to the management of national park resources are evident.

A trend, away from management of individual species and towards the holistic management of all natural resource components and the processes that link them, has evolved during the last two decades. Also known as ecologically based or ecosystem management, this perception of natural resources now pervades scientific research and has been adopted in some form by leading land management agencies. Ecosystem concepts were formally embraced by the CPS in the 1979 Policy.

Most recently, the practice of ecosystem management has been refined by including the concept of "ecological integrity". Although the literature does not offer a concise definition of "ecological integrity", the term is best considered as an emerging model for thinking about the structure and function of nature that intermingles scientific theory with ethical judgments (Serafin et al., 1989). Ecological integrity might be most simply defined as the opposite of ecological degradation. A change in ecological integrity will be indicated by a range of criteria involving site and process parameters.

Legislated amendments to the National Parks Act now make ecological integrity a prerequisite of park management. This concept marks a significant trend in management of park lands.

Some land management agencies historically managed for various "key" or "indicator" species of plants or animals (including rare and endangered species) with the view that protection of these would ensure protection of the ecosystem of which they are a part. This indicator approach is being discarded in favour of broader ecological approaches to protection involving criteria consisting of a range of site indicators and processes. Some of the key areas of scientific investigation that assist in defining and achieving ecological integrity are research into maintenance of ecosystem structure and function, retaining biological diversity (species, genetic and community), ensuring minimum viable populations, island biogeography and restoration ecology.

Leaders in resource management practice and research are advocating that limits of acceptable change be established in order to provide scientifically valid, credible decision points for managers of protected areas. These limits would be based on scientific knowledge

of resource impacts and policy. The concept of acceptable change can be applied to specific sites and to the ecosystem as a whole.

An action strategy for sustainable tourism development was recently put forward at the Globe 90 conference in Vancouver. Globe 90 recognized "the interdependencies that exist among environmental and economic issues and policies" noting that "protecting and enhancing environment" is inseparable from the objectives of tourism (Tourism Stream Action Strategy Committee, 1990).

Within the context of national parks, the concepts of ecological integrity and limits of acceptable change are closely related to the concept of sustainability.

2.5 SCIENCE

An information explosion has begun and will continue in the future. More data on natural resources in and adjacent to parks are required to protect, manage and interpret the resources of the western national parks. **The CPS will be expected to identify threats to the parks, develop proactive management and play an increasing role in the understanding of natural ecosystems and their management, at local, regional, national and international levels.**

As noted in the Green Plan, Canada's national parks will be expected to fulfill roles as ecological benchmarks, gene pools, and areas where environmental impacts and their acceptable limits can be evaluated. To achieve such objectives, managers will require supporting research and a greater understanding of the resources and ecological processes represented and protected within the parks. In turn, the CPS will then need to integrate science into the decision making process, operation and management aspects of all park functions.

The CPS will need to develop and enhance its scientific expertise, in order to identify future research priorities, evaluate the research conducted by and for the CPS and ensure that the information gathered is communicated and utilized at all levels of decision making. Increasing threats to the ecological integrity of the parks, both internally and externally, will raise the requirement and public expectation, for professional and credible science. This will be accompanied by legal scrutiny in environmental assessment, public safety and law enforcement.

The emergence of conservation biology as a new science, which promotes the application of ecological theory to wildland management, will assist the CPS in the attainment of environmental objectives. Universities will look to the CPS to assist in the development of new institutes and centres of excellence for wildland conservation. These links will provide opportunities for exchange of data and information, as well as training opportunities for both agencies.

Increasing support from other agencies, scientists and the public will be required. The scientific community (academic, government and private sectors) will have to understand the positions adopted by parks

to meet management objectives and therefore will have to be involved in the development of these objectives. **Two way communication will be essential, as each will have to acknowledge the expertise of the other.** Parks will, in some cases, be the only place where research into undisturbed environments and rare and endangered species could be conducted. The assistance of those communities will also be essential in the development and maintenance of park expertise. Park procedures and facilities will have to encourage and support rather than deter the use of parks as "living laboratories". The CPS WR must recognize that it has a vested interest in and obligation to the development of science.

2.6 TECHNOLOGY

Similar to the revolution in office environments, technology offers a number of additional tools that will facilitate significant advances in protection of parks. Collectively, technologies should be regarded as tools to assist in doing a job and not as an end product or solution in themselves. Primarily, technologies serve only as labor saving devices to manipulate and synthesize large volumes of resource data, and in turn, allow informed decision-making by the manager.

There is a global trend towards recording and storing (directly or indirectly) all resource information in standard formats, accessible by computer and capable of being transmitted universally for analysis with data from other sources.

Rapid evolution in the capability, size and cost of computers will continue to expedite the analysis of data at field locations as compared to major data processing centres (e.g. CanSIS in Ottawa).

A universal trend to increased use of three distinct but related "technologies" will continue in the management of natural resources. These technologies are Geographic Information Systems - GIS, Predictive Computer Models, and Expert Systems (i.e. artificial intelligence). All are dependent upon well developed and maintained information management systems which incorporate all available data.

Geographic information systems have the ability to receive, analyze and display many levels of geographically referenced data as well as combine layers of data to create new levels of information. World-wide, GIS has been adopted as a standard tool in resource management. This trend has been nationally approved by the CPS with the decision to install park-based GIS's. Currently, data are being downloaded onto park micro-computers as equipment is acquired.

Elsewhere, GIS is used in park management planning and decision making tasks; many applications for use by Interpretive, Visitor Services and General Works staff have been found.

Predictive computer models are widely used by resource management agencies and researchers outside the CPS in order to forecast changes in ecosystems, anticipate changes that may result from management

actions and identify acceptable resource management options. Modeling exercises based on sound data are essential in order to make the transition from "reactive" to "proactive" management styles and to create a management style that is equally adaptive as the dynamic system at which it is targeted.

Expert systems are essentially computerized decision making tools that interact with the resource manager through question and answer formats and result in a recommended solution. They are being developed for use in commonly faced situations that are complex, involve numerous inputs but often require the input of expertise that is not readily available. Expert systems replace more laborious methods such as the use of checklists or matrices. There is a rapid trend towards increasing use of expert systems in field resource management situations. The CPS is currently investigating expert systems that will aid in fire suppression and preparation of EARP documents.

Consultation with other DOE agencies and the USNPS indicate several trends in the successful implementation of advanced technology within a resource management setting. These are: complex software is less expensive if purchased from the private sector rather than being developed in-house; qualified operators and adequate O&M resources have been dedicated to support the technology; and well developed database management systems must be in place.

Another rapidly advancing field of technology with significant application for resource management in national parks is the use of remote sensing information. Options range from the acquisition of low level aerial photography to obtaining digital satellite imagery from a variety of sources around the globe. Remotely sensed information has always been a basic field tool for resource managers, however, the ability to input these types of data directly into computers for use by GIS's presents numerous opportunities for enhancing resource protection efforts.

Trends towards miniaturization of radio-telemetry equipment and monitoring via satellite linkages are increasing the practical application of this technology by resource managers in parks.

Each of the above technologies can be used alone, however, even greater advantages can be realized by linking one or more of them together.

Technical processes and equipment demand data, understanding of ecological interrelationships and support. Data bases should not be static and must be updated to reflect changes in knowledge and advances in ecological modeling. The CPS has a significant investment in resource inventories (data bases) which is unparalleled in comparison to data describing lands adjacent to parks.

2.7 RELATIONS WITH OTHER GOVERNMENT DEPARTMENTS AND DOE SERVICES

Other Government Departments

The complexity of the natural resource issues, their multi-jurisdictional nature and anticipated fiscal restraint impacting on all levels of governments will demand a great deal of integrated planning and organization and will force government agencies to avoid duplication of services and expertise.

Restraint will pressure government agencies to continue to narrow their focus to specific mandates. As an example, CWS now concentrates on migratory birds and rare/endangered species, whereas, it once had much broader range of interest including fisheries and limnology. Agriculture Canada was involved with inventorying soils of non-agricultural land but now focuses on issues of greater interest to agriculture. Similarly, CFS has narrowed its research to industry related forestry issues.

In contrast some other departments' traditional foci have had to be broadened with little lead time or resources to develop adequate expertise. DFO had concentrated on a number of commercial species, in particular salmon, and are now having to strain limited resources to address newly emerging fisheries such as hag fish and sea cucumber.

Increasingly, government agencies' mandates concentrate on species or a single aspect of the ecosystem. Broader ecological relationships of protected lands do not directly relate to the mandate of agencies which are driven by resource harvesting concerns. **No other agency in Canada shares our mandate for the management and protection of lands in their natural state - hence we have unique requirements for ecological information and management processes.**

Trends toward limited resources and a focused mandate also mean that an agency will not financially participate in another's area of concern unless that other agency is defined as a client. "There will be no free lunches but some agencies might go Dutch."

Within DOE

Public awareness and concern about environmental issues will continue to grow and in turn the Canadian public will expect DOE to demonstrate leadership in proactively dealing with environmental issues and in applying EARP and CEPA. This expectation for a stringent program of environmental protection based in science will be the cornerstone of our future credibility and the Green Plan.

DOE services are developing strategic plans and statements addressing the role of science within their service. The issue of ecological benchmarks and ecological monitoring arose in many conversations with other departmental personnel. There is growing recognition that some

type of ecological benchmark system would benefit many OGDs and provide an opportunity for advancement of science in understanding ecosystem structure and functions. However, there is no consensus on the character of such areas or the criteria that could be monitored to determine ecological integrity and environmental change.

The DM has indicated that it is important for the departmental services to be more closely linked. Each service has expertise that can be of benefit to another. For instance expertise in climatic and hydrological modeling will be of interest to the CPS and our experience with law enforcement will benefit the Conservation and Protection Service.

"State of ...."

Increasing awareness of environmental issues will result in greater demands for accountability within DOE in general and the CPS in particular. Recognition of, and public pressure associated with this trend has already resulted in the implementation of two DOE reporting structures.

The first "State of the Parks" Report may focus on specific issues or achievements. This narrow perspective could create a dilemma similar to that faced by the USNPS, which finds itself with congressionally allocated funds targeted at specific problems regardless of other management priorities. The public forum in which these reports will be placed will likely result in debate over issues and an increased need for detailed information on all aspects of park management and research.

The "State of the Environment" Report closely ties DOE to the broader picture of environmental management. The importance of benchmark monitoring to this report may further increase pressure on the CPS to expand its mandate to include research development specifically for broader environmental management.
A consequence of both reports will be to redirect manpover and resources to development of data required to address the issues identified.

New Park Establishment

The Green Plan's emphasis to complete the national park system will initially concentrate on candidate sites north of 60. The implication of new park establishment in Western Region will be focused on marine parks, coastal old growth forests and certain historic park themes (e.g. the historic ranch). In the long term negotiation with every province will be initiated to establish the outstanding parks.

History shows that negotiations for new parks have lead to innovative proposals for joint management regimes. The establishment of new parks in the USA has lead to reduced resourcing for established parks. In Canada, new parks such as North Yukon show that although park operating resources have been provided as part of the park establishment, the

overhead and support costs required by the program have not been funded. The estimates for required resources will be developed with limited lead time and understanding of the site conditions. Expansion of the system north of 60 may lead to realignment of some regional jurisdictions.

Recruitment of management staff for the new park initiatives will provide promotional opportunities for Western Region staff. Given the relative isolation of these new locations, younger and more mobile personnel with strong academic backgrounds will be attracted to these parks.

2.8 EARP

The expanding role of FEARO and the proposed new legislation of EARP will result in more formal panels and additional public review of proposals. Socio-economic data as well as natural and cultural resource information will be required as support to future documentation. The economic impact of development and maintenance of ecological diversity will become part of the evaluation of impacts. Recent court decisions which have supported the need for detailed resource data and analysis, rigorous review and public participation in the process will establish new criteria from which the public will judge future environmental assessment.

Awareness of environmental issues will continue to expand through the 1990's requiring a more scientific basis for all decision making within parks. The Environmental Assessment Review Process as it is practiced within the CPS will face increasing public, professional and legal scrutiny as a result of this increased awareness. Proponents will be better prepared to counter CPS information with experts, data and interpretations of their own. At the same time, pressure for development both within parks and in areas peripheral to their boundaries will result in more projects which will require environmental assessment.

Projects and processes which are initiated by parks will be equally subject to EARP, with coincident public expectation for critical review.

Traditionally, the CPS has applied EARP to projects initiated within park boundaries. In the future, the CPS will be expected to apply a similar process to proposals outside the park boundary which will have potential to affect the ecosystem within the park. The effect of northern pulp mills on the ecosystem of Wood Buffalo National Park is a dramatic example. The additional workload could be substantial and will be complicated by a requirement to ensure that decisions are based on facts which can be supported by credible science. The need to communicate our results to the public in a timely and effective fashion will become as important as the data which is presented. The CPS will have to be prepared to defend its position to the general public, to

other scientists, at public hearings and in courts of law. The information required at each level of the review must be accessible to those who wish to review it and methods for dissemination of information must be identified.

In order to develop criteria for decision making in environmental assessment, improved construction and post construction monitoring will be required to compare predictive versus actual mitigation and impacts. Methods to evaluate the effect of cumulative impacts and to integrate environmental assessment earlier into the planning process will be required.

2.9 ADMINISTRATIVE AND MANAGEMENT PROCESSES

Additional management and administrative processes have been put in place without corresponding assessment of impact on fiscal resources and with little or no (re)allocation for implementation e.g. EARP, NRMPP, Fire Management, Public Safety, and Law Enforcement. Currently, Resource Conservation personnel are expected to apply over 70 national, 30 regional and numerous park directives. The number of planning related exercises continue to grow with little priorization. At the same time our person years and the purchasing value of our budgets have been reduced by restraint and inflation to the levels of the early to mid 1970's.

The strategic planning process in Western Region represents a positive change in management that will lead to re-examination of existing processes and priorization of workload with defined objectives.

Positive attributes of administrative and management processes will be those which:

- do not focus on single issues in isolation from related issues;
- are forward looking and pro-active versus reactive only;
- serve to integrate various processes, levels of operation and functions;
- are synchronized with other processes, in particular, the park management planning process;
- are put in place to assist rather than control;
- involve or become involved in communication inside and outside the CPS; and
- are characterized by adaptiveness.

Changes to the National Parks Act and Policy emphasize the importance of zoning in the protection of park resources. The existing zoning structure will have to become more sophisticated, addressing ecological sensitivity and significance, spectrum of recreational opportunities, and wilderness protection, as well as the current emphasis on motorized access.

2.10 LAW ENFORCEMENT

Law enforcement is becoming increasingly complex and routinely involves multiple agencies on both the national and international levels. Traditionally reactive, the orientation of law enforcement is changing to become proactive thus requiring offsite investigation and information gathering activities. Information exchange with other law enforcement agencies is essential but will not occur if the CPS is not viewed as a credible agency.

Legislation (such as Charter of Rights, Young Offenders Act) and procedural requirements (FLEUR, Search and Seizure) are increasing the complexity of law enforcement tasks. Substantial training requirements will result, specialists may require a up to 17 weeks of training and recruiting level wardens up to 6 weeks.

The incidence and sophistication of poaching in national parks is expected to increase due to profitability, the increased accessibility of park boundaries, and declining availability of some legally hunted species and trophy animals. In addition, increases in criminal code infractions (RCMP mandate) are anticipated in all parks.

Public expectation is growing that the CPS WR will effectively deal with wildlife related offences. Our staff will be increasingly involved with Criminal Code activities if for no other reason than being the first officer on the scene. In addition to the increased responsibilities, departmental concerns over pollution will require strengthening regulatory provisions and compliance (Green Plan).

2.11 PUBLIC INTERFACE

There are a number of trends relating to the interface of parks with the public, which will have implications for the protection of resources entrusted to the Canadian Park Service. Broad trend areas include tourism, demographics, economics and environmental consciousness.

Socio-economic Climate

The relative importance of tourism will continue to grow as the emphasis of the economy in western Canada changes from a resource base to a service base. This will occur over a period when Canadian's standards of living are expected to decline. In the interests of maintaining economic prosperity, there will be increased pressures for parks to contribute to the growth of the tourism. There will be pressure to allow further developments in parks in order to maximize existing substantial investments in infrastructure which support tourism. Further development is also likely to occur on adjacent lands to parks and may result in elevated use within the park itself.

The previous referenced concepts of ecological integrity and

sustainable tourism development will be instrumental in making decisions regarding the appropriateness of development.

There are some changes to Canadian demographics which can be expected to have an influence on parks. While these changes will have more impacts on the types and kinds of services available in parks, there will also be related resource impacts. The so called "graying of the Baby Boomers" will be reflected in the mean age of the Canadian population increasing to 41 years in the next decade and result in a doubling of the numbers of senior citizens (Coopers and Lybrand, 1990). An older population of park visitors is anticipated to create demands for greater amenities and comfort, and services which are less physically demanding. The result will be additional pressure for facilities and related infrastructure, with the resultant additional impacts on park resources.

There will also be changes to the demographics of visitors to parks in the future. The percentage of foreign visitors is forecast to increase to as much as 30% of annual visitation by the year 2000 (Coopers and Lybrand, 1990). The globalization of the international tourism market, will likely lead to pressure for upgrading of services and facilities to keep pace with the international market. Resource impacts can be anticipated with redevelopments for upgraded accommodation, restaurants, shopping, tourism attractions, etc. and associated infrastructure.

The cultural composition of Canada will change with an increase to 25% of the population which is foreign born. This may mean that Canadians will hold different views on conservation and environmental protection. While the CPS currently enjoy broad popular support by the Canadian public, as evidenced by the support to create South Moresby, it should not be taken for granted that traditional support will continue.

Increased Cooperation

There has been and will likely to be an increase in cooperation at all levels in Canadian society. A decline in the availability of financial resources in both the public and private sector has resulted in pooling of resources for achievement of complementary objectives. This spirit of cooperation extends between government agencies to the business sector and to the participation of individuals as volunteers.

Environmental Consciousness

There is a trend to an increased awareness and interest in the environment by the public. There are a number of implications for the CPS.

One overall trend is the public wants direct input into the formulation of government plans, programs, and policies. There is also information to suggest that park visitors and special interest groups are not only interested in the environment but have greater knowledge and educational backgrounds compared to the general public. There will be demands for more input into park decision making and access to data on

natural resource management from individuals and groups with the ability to be more discerning or critical of information received.

There is increasing emphasis on concerns relating to individual health and safety and on environmental matters closer to "home". The Green Plan notes that maintaining and improving health is not simply a function of the health care system but is affected by environmental factors.

The Canadian Park Service has been strongly associated with conservation and environmental protection in the past, even though parks are often located some distance from major population centres. CPS protection efforts have benefited from the media visibility of threats to park resources. If the interest in environmental concerns continues to shift, there will be a resultant loss of visibility about park protection related issues. This will come at a time when strong public support for protection will be required to balance increased demands related to recreation and tourism.

The rising environmental consciousness of Canadians will have some positive effects on the CPS; for instance, visitors will become more disposed to the concepts of ecologically sensitive sites and limits on activities.

2.12 HUMAN RESOURCE MANAGEMENT

"Organizations will be more information based, flatter, more task oriented, driven more by professional specialists and more dependent upon clearly focused missions." (Drucker, 1988)

Delegation, accountability and ownership will become a necessity and an integral part of management of staff in order to meet the increasingly challenging endeavors.

CPS staff will have to be credible and professional in all aspects of their responsibilities. It will be necessary to identify and develop specialists in resource management, law enforcement and public safety to deal with the increasingly complex challenges and a rapidly expanding knowledge base. Staff will become involved in panel reviews, court appearances and will be under constant scrutiny by our peers and the increasingly sophisticated public.

It must be kept in mind that we are an operationally oriented organization and will continue to have a real requirement for generalists who will remain the cornerstone of the Warden Service. However, the trend to establish some specialists at the field level in the CPS WR has already begun, parks have identified key personnel within the Warden Service to focus on a specific function. This must be formally recognized, resourced and nurtured at all levels of the organization in a positive way addressing career development, organizational effectiveness, etc. Our specialists will have to be independent, flexible thinkers with a broad understanding and

experience with the organization and will reduce the requirement to train "everybody for everything".

Trends indicate that the Canadian labour force is aging, jobs requiring a lover skill level are declining and conversely high skill level jobs increasing. The resul. will be an increased competition for qualified staff and the requirement to raise the level of efficiency (Public Service Work Force 2000, 1989).

The transient society of the 60's & 70's would appear to have waned. With an aging labour force it will no longer be acceptable to consider mobility as the primary form of career development. Today's population is more inclined to put down roots and is quite willing to sacrifice advancement for quality of life and job satisfaction. There is also a trend toward seeking new challenges instead of being upwardly mobile. Employees can be expected to change careers and/or be retrained 4 times in a working lifetime.

3.0 DISCUSSION AND RECOMMENDATIONS

Having considered the Future, the following recommendations were developed and are put forward as suggested strategic goals. The list is extensive but it will likely never be complete. There will always be other ideas as each reader will bring a different perspective to their understanding of the implications presented in 2.0 The Future.

The recommendations are put forward with a minimum of discussion given the self imposed time restraints and recognizing that the linkage between the The Future and the recommendation is usually apparent. Reference may need to be made to the definitions section (1.5). **The principle recommendations are presented in bold but are supplemented with some discussion and sub-elements which will be important in developing implementation strategies.** The bracketed numbers behind the bolded recommendations correspond to the numbering used in the analysis tables.

When reading some of these recommendations, a reader may say "ve are already doing this" or "this already is policy". The task force recognizes that in some cases progress is being made, but that generally within the region achievement is inconsistent and not up to the level required.

3.1 GLOBAL CHANGE

Global changes will be pervasive and inevitable. By positioning ourselves with credible resource management expertise, the CPS will be better able to understand the implications on park resources. Better measurement and prediction of global change, and avoidance of resource management decisions which are inconsistent with the longer term trends for habitat change, will be important measures. At this time the CPS collects some useful weather information but, with respect to global change, is really only an interested observer.

- establish links with agencies whose mandate is closely linked to monitoring global change (e.g. AES, Forestry Canada) to ensure access to current theory and predictive capability and to contribute to the development of the science. (1)

- utilize up-to-date information on global change to define implications for management of park resources and to avoid decisions which are inconsistent with the longer term trends for habitat change. (2)

Pollution

At this point in time, the CPS WR has focused on effluent and solid waste management with little attention to issues such as road salt, recycling and environmentally friendly maintenance practices.

- develop and implement stringent internal guidelines for all park operations, including disposal and management of vastes and hazardous goods. (3)

The planning forum held in February 1990, identified the folloving short term goals which would contribute to the above objective.

- have material management prepare, and keep up to date, a list of environmentally sensitive products of use to parks/sites. (4)

- have A and E Services prepare two lists - one identifying environmentally sensitive practices and the other identifying practices which should be avoided. (5)

- have General Vorks in individual parks identify those environmentally suitable products and practices which vill be utilized from the above. (6)

- ensure that the CPS enforces all relevant pollution regulations. (7)

- develop links with and support initiatives of DOE and OGDs to facilitate enforcement of regulations dealing with monitoring and mitigation of spills, transport and storage of potential pollutants. (8)

- ensure that parks with potential problems have a toxic spill management plan and that there is inter-park coordination of responses, equipment, training and prevention strategies. (9)

- initiate a comprehensive program for re-cycling of materials used in park operations. (10)

- initiate practices that demonstrate environmental sensitivity in all park operation and maintenance activities (eg. veed control, rehabilitation, facility development, stringent standards for sevage effluent and fuel containment). (11)

- install solar and vind driven electrical systems vherever feasible to reduce demand for conventional pover generation and environmental disturbance (e.g. remote kiosks). (12)

3.2 REGIONAL INTEGRATION

The process of encroachment by incompatible land uses is the largest single threat to the ecological integrity of vestern national parks. The CPS has not and must define ecosystem boundaries, inventory threats/opportunities and move more aggressively to establish cooperative mechanisms (such as the B.C. MOU) with agencies responsible for land adjacent to parks. In addition to those set out in the section on Ecological Integrity, the folloving recommendations are presented.

- **establish mechanisms at senior and field levels to facilitate the adoption of sustainable development philosophies on lands adjacent to the parks which ensure the integrity of park resources.** MOU's with provincial governments , liaison with native organizations, closer working relationships with municipal districts are examples of such mechanisms. (13)

- **identify regional integration issues and strategies for resolution in Park Management and Park Conservation Plans.** (14)

- **develop processes (e.g. CRM, MAB) and staff with a broad appreciation of the priorities and mandates of other agencies and communication skills to effectively interface with outside agencies, landowners and industry** (walk a mile in the other guy's shoes). (15)

Although the CPS has heritage resource data bases for parks, these data bases do not extend beyond park boundaries and therefore are of limited use in addressing trans-boundary issues.

- **liaise with outside agencies and landowners to expand the heritage resource data base to peripheral lands.** (16)

Many of the issues which will confront the CPS WR will be driven by socio-economic factors and not only by resource management concerns. When responding to those issues, the CPS will have to present and understand arguments based on socio-economic data. In-house expertise in this area is severely limited as is our utilization of outside sources.

- **develop CPS ability to obtain and analyze socio-economic considerations.** (17)

- **establish a socio-economic data base which assesses the benefits to regional development of the park's presence and high tourism profile.** (18)

3.3 SUSTAINABILITY AND ECOLOGICAL INTEGRITY

The traditional focus on management of species is being replaced by holistic management and understanding of integrated resource components. At this time however an issue or species focus still pervades our resource management planning (e.g. wildlife management strategies which remain independent of vegetation management strategies).

The concept of ecological integrity now established within the National Parks Act will require an understanding of a broad range of indicator criteria. A shift in these indicators would therefore reflect a shift in ecological processes. Whether or not this shift is perceived as a decline in ecological integrity will depend on an understanding of the ecosystem and its processes (e.g. a shift may result from natural succession or a man-induced change).

Sustainable development is a concept developed by the World Commission

on Environment and Development (Brundtland Commission). The following quotes from Our Common Future provide a context for understanding the concept.

> "to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."
>
> "sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfill their aspirations for a better life."
>
> "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs."

The Brundtland concept is a philosophy for regional landuse and as presented above, contains elements which are inconsistent with some aspects of park protection (e.g. exploitation of resources, fulfilling all aspirations).

"Sustainable tourism development" as described by Tourism Canada at Globe 90 "can be thought of as meeting the needs of present tourists and host region while protecting and enhancing opportunity for the future." Goals established for sustainable tourism development are;

- to develop a greater awareness and understanding of the significant contributions that tourism can make to the environment;
- to promote equality in development;
- to improve quality of life of the host community;
- to provide a high quality of experience for the visitor; and
- to maintain the quality of the environment on which the foregoing objectives depend.

In this sense, sustainable tourism development is a more specific concept than that put forward by Brundtland. This interpretation is more readily applied to national parks and sites because these areas are to be visited but, left unimpaired for future generations.

CPS WR must however redefine the concept of sustainable tourism development within its unique mandate. The tourism role of CPS WR by the year 2000 will be: "We will be leaders in the business of presenting nationally and internationally significant Canadian heritage to Canadians and our international guests. National parks and sites will be models of sustainable, high quality tourism experiences related to the protection of heritage resources." (Parks and People Task Force Report, 1990). There must be a scientific basis for indicators of ecological integrity. The CPS WR will utilize limits of acceptable change as a tool for measuring and monitoring ecological integrity within our objectives for sustainability. The development of these concepts will be critical to the management and protection of park and site resources given the future global change and the mandate of the CPS.

- define the CPS WR concept of sustainability, and identify, in conjunction with PHQ, criteria which indicate ecological integrity. (19)

- identify the approximate "ecosystem boundaries" of the natural systems (beyond park boundaries) represented in western parks to determine the "sphere of influence" within which Parks must address regional integration concerns. (20)

- actively promote scientific research that will lead to better understanding of the historic and present ecological conditions and processes. (21)

- actively promote scientific research that will identify appropriate ways to mitigate or prevent artificial changes to Park ecosystems caused by modern man. (22)

- establish a priorized, thorough Park-specific inventory of internal and external threats to heritage resources and ecological processes. (23)

- establish protection priorities and strategies in the PMP and PCP for significant resources. In some cases the philosophy of ecosystem management may be in contradiction with these priorities (e.g. prescribed burning versus protecting an old growth forest). (24)

Although there is growing recognition that some type of ecological benchmark system would benefit many OGDs and provide an opportunity for the advancement of science in understanding ecosystem structure and function, there is no consensus on the character of such areas or the criteria that could be monitored to determine ecological integrity and environmental change.

- develop goals and criteria for selection and establishment of benchmarks, in conjunction with PHQ. Because ecological benchmarks should be an initiative of a number of agencies, goals for benchmarks should be developed jointly among the CPS and other DOE services, OGDs and the scientific community. (25)

- establish a system of ecological benchmarks within western region parks to provide quantifiable measures of ecological integrity, assist in determining the limits of acceptable change and provide information for State of the Park reporting. (26)

3.4 SCIENCE

The future trends indicate that park management decisions must be based on the acquisition and application of credible scientific fact. Such decisions will be the cornerstone for the protection of the internationally significant heritage resources managed by the CPS WR. At this point in time, outside agencies and stakeholders do not

perceive the CPS WR as having credibility in the scientific management of park resources. This lack of credibility is a result of many factors including: failure to apply scientific methods to resolving management problems; existing scientific knowledge not being integrated into all aspects of park operation and management; limited internal capability to liaise as a peer with external agencies; our lack of participation in scientific and professional forums; and lack of published information on park resources.

Heritage resource management and protection expertise needs to be in place at, or available to, the regional office and parks. In addition to in-house expertise, there are several options for accessing specialized expertise including contracting, standing offer agreements and linking with OGDs. Parks must ensure that sufficient expertise exists within its operation to identify, analyze and evaluate the research, whether it is conducted by us or by others.

- establish specialists in various disciplines of resource management and protection at both the field and regional levels. Necessary characteristics of resource specialists include an ability to design, conduct, analyze and evaluate scientific/experimental procedures; a broad ecological background and experience; strong communication skills and personal suitability attributes compatible with conducting scientific work in the context of the CPS WR. (27)

The CPS does not have credibility in the scientific community. In addition to addressing that problem, direction to facilitate science and research in parks is needed to eliminate the widely held perception that the CPS WR presents barriers to research. Specifically, a Science Policy which addresses the following is required:

- criteria for evaluating, selecting and priorizing research projects;
- processes to facilitate opportunities for research in parks;
- information and data requirements to enable the results to be utilized in public education programs;
- roles of collaborating academic institutions and OGDs;
- communication strategies for disseminating scientific information;
- review and advisory structures and processes to ensure scientific validity;
- direction for the resolution of issues associated with extraordinary scientific requests; and
- direction for long term (benchmark) monitoring programs.

- develop and implement a Science Policy to set direction for and to facilitate science and research in parks. (28)

Acquiring, storing and distributing scientific literature and data are essential, and no clear process is in place at this time.

- develop and implement a detailed strategy for communicating scientific information within the CPS WR and with others to ensure *exchange of data and results*, and to facilitate peer review, (29) including

- maintain at each park and at regional office an accessible, organized and current library of park related documentation and, to the extent possible, relevant resource literature.

- acquire agency memberships in relevant resource management societies to facilitate participation in professional meetings and access to professional literature and journals.

- maintain compatibility of database structures, data analysis systems and data storage between parks and within the region.

- identify sensitive resource data and establish classified access categories.

An essential part in developing and maintaining credibility and being current with the developments in the scientific milieu is participation in peer review.

- formalize peer review of research proposals, research products and management strategies to achieve improved quality and credibility, (30) including;

- establish internal peer review through Science Working Groups composed of park resource specialists and their regional counterpart(s) in each discipline.

- initiate scientific peer review through publishing of significant internally conducted research in refereed journals.

- include a requirement for publishing research findings in refereed journals as standard clauses in research contracts, where appropriate.

- subject research, which does not qualify for journal publication to scientific peer review.

- routinely prepare papers and posters for presentation at professional symposia.

- ensure that park research is published in media and popular magazines (see Public Interface).

Linkages with OGDs and other agencies will help to ensure that our programs reflect changing developments in science and to facilitate the use of parks as places to conduct research into natural ecosystems.

- require individual parks to establish consultative forums with specialists in the public, private or academic sectors which can serve their specific advisory needs. (31)

- establish a Regional Science Committee to allocate resources and ensure that research direction is consistent with strategic objectives. (32)

- **establish a Science Advisory Forum consisting of CPS staff and outside expertise to assist in the development of a science program and its products.** (33)

- **establish a science management function within the regional resource conservation sub-activity** to foster cooperative links with academic institutions and park personnel, inform the academic community of park research opportunities and requirements, facilitate advisory functions, establish formal agreements with Universities, communicate Institutional needs to park staff and generate interest in conducting scientific research in parks. (34)

- **develop and circulate an annual list of potential research topics to academic institutions, foundations and OGDs.** (35)

- **simplify the process involved in initiating and conducting scientific research, and transfer the responsibility for issuing and approving collection permits to the park level.** (36)

- **introduce the flexibility currently available in volunteer agreements into contractual agreements to provide support to outside researchers and contractors** (e.g. use of government facilities and equipment, accommodation, transportation). (37)

- **provide facility support** (flexible use of campgrounds, basic laboratory and accommodation) **for research done in parks.** The Pallisades, for example, could be developed into a park science centre. (38)

Within the CPS, funding for scientific research is not given priority. Some initial funding for post graduate research is required. The CPS should provide start up funding to indicate our commitment to research within parks. This money would serve as seed money and graduate researchers would be required to find additional sources of funding to complete their requirements.

- **initiate an effective funding program for a minimum of $25,000 for research by graduate students.** (39)

Many opportunities for mutual benefits can be realized from liaisons with universities and OGDs in developing joint programs for research. The CPS lags far behind the USNPS and other agencies in establishing such programs.

- **investigate opportunities to create a category within NSERC grants specifically for park conservation biology or to facilitate acquisition of NSERC grant funding for park related research projects.** (40)

- **establish adjunct professorships in appropriate departments of Canadian universities for scientists employed by the CPS WR to facilitate directed studies by graduate students, to increase the CPS profile on campus and to assist in curriculum development.** (41)

- participate with OGDs in establishing cooperative resource institutes at Canadian universities (e.g. proposed cooperative wildlife institute - CWS and University of Alberta), and/or establish CPS WR cooperative resource institutes and/or study units (e.g. University of Waterloo, USNPS cooperative study units) to facilitate additional funding options (e.g. National Science and Engineering Research Council (NSERC), World Wildlife Fund, private sector or CPS grants-in-aid) for research and access to external expertise. (42)

3.5 TECHNOLOGY

A number of technologies will assist in the incorporation of information into management decisions. GIS offers the capability to manipulate spatial information, models allow data to be analyzed in the context of time and expert systems provide assistance in decision making. None of these benefits can however operate without a well developed and dynamic data base management system. Traditionally, park databases have included only resource data but must incorporate visitor, socio-economic, law enforcement, public safety and facility/asset data in the future. Crucial to any of the above is the need for expertise with both formal academic training in natural sciences and formal or acquired skills in computer science to design, operate and maintain data management systems and computer technology for the benefit of each park.

Although the CPS WR has made some significant isolated advances in application of technology, there is little overall coordination and standardization and a serious lack of support for existing technology.

- develop a data management program and dedicated expertise at each park. (43)

- identify long-term data requirements for the management of visitors and heritage resources,

- evaluate existing data collection activities.

- evaluate basic ecological and cultural resource inventories to identify data gaps in each park.

- convert existing inventory and database information into computer accessible formats.

- develop strategies for updating existing ecological resource inventories and integrating thematic inventories.

- develop standardized (but not identical) Park database management systems that incorporate all relevant data and data analysis software.

- implement GIS, as Nationally approved, at the parks and at WRO. (44)

Computer modeling is essential to understand complex ecosystem

components, interrelationships and assess data requirements.

- **proceed with computer modeling and selected expert systems at the parks and regional level. (45)**

- provide resources, aside from personnel and initial equipment costs, to support technology e.g. facility space, O&M funding, training, and data acquisition costs.

- **establish a regional data management function,** responsible for developing standards and generic data structures, facilitating technology/information transfer, providing consultation to parks, coordinating training, integrating sub-activity requirements and applications, and providing coordination with other EDP systems (e.g. DOTS, AFMAS, MIF, MMS). (46)

Data acquisition costs are high, therefore cooperative efforts in obtaining and sharing data are essential.

- **develop links between parks, OGDs, educational institutions and the private sector to facilitate acquisition and analysis of data. (47)**

3.6 RELATIONS WITH OTHER GOVERNMENT DEPARTMENTS AND DOE SERVICES

It is essential for the CPS WR to participate in OGDs and DOE initiatives. Participation with OGDs will expand CPS WR credibility, provide CPS staff with exposure to scientific advances in other fields, allow access to specialized expertise and result in cost effective solutions to park problems in turn. The CPS has expertise and natural environments for research which can be utilized by OGDs.

With restraint no government agency will be permitted to duplicate the role and expertise of another. Although individual departments may have expertise which can be of benefit to another, a department will only be able to provide assistance if a client relationship exists. The value of the support will also be dependent on an understanding of each partner's priorities.

The departmental initiative to ensure strong linkages with other DOE Services and the Green Plan provide a number of opportunities to the CPS where we can demonstrate leadership within the department or benefit from the expertise of other services.

- **create a directory of all OGDs and DOE expertise that can be of assistance to the CPS WR in resource management and research. (48)**

- **establish MOU's** (defining the CPS WR as a client and the CPS WR's contribution) **with those agencies that have expertise of benefit to the CPS and which would be used in parks within five years.** It is assumed that CPS scientific requirements are defined. There is little merit in having a MOU if there is no specific work to be undertaken. (49)

- include OGDs and DOE scientific representation on advisory structures such as Science Advisory Forums, peer review, etc. and establish within DOE ongoing communication below the CORE level. (50)

- have CPS WR staff participate in other agencies' advisory structures, program and peer review structures. (51)

- have CPS WR and OGDs specialists make presentations regarding respective roles, responsibilities and issues to each other's staff to increase general staff awareness. (52)

- consider the implications of other DOE strategic statements and science policy initiatives as part of ongoing review of the CPS WR strategic plan. (53)

- establish a number of joint DOE training initiatives (e.g. C&P re: pollution, FEARO re: EARP process and presentation of data to panels, courts, etc.). (54)

The public expectation that DOE will provide leadership in environmental issues will present a number of opportunities for the CPS WR.

- provide international leadership by implementing specific projects demonstrating commitment to international programs (such as World Heritage Sites, and Man and the Biosphere). (55)

- continue to strengthen relations with USNPS by inviting their representatives to some aspects of RMC forums and by establishing work exchanges with CPS WR and USNPS specialists and operational staff. (56)

State of the Environment and, in particular, State of the Parks reporting will place park issues in a prominent public forum. It is essential that subjective evaluations be replaced with measurable and defensible criteria.

- (refer to recommendations in ecological integrity)

The establishment of new parks will have an impact on the CPS WR.

- develop expertise on new park negotiations, and joint management regimes as part of park planning. (57)

3.7 EARP

Environmental impact assessment is seen by academics and other government departments as one of the areas in which the CPS WR is a leader and a developer of good science. Particularly in the area of large project assessment, our credibility and professionalism is acknowledged as state of the art.

Because of future trends, the CPS must continue to raise our scientific and professional credibility and increase our efficiency. The CPS will require a more integrated approach which reviews not only the pre-development assessment but which includes conceptual review and extensive construction and post project monitoring. Our leadership role must be enhanced and reinforced through the communication of EARP science to others, and through development of internal and external communication and information sharing.

The team approach, which has been utilized in the larger assessments, must become the standard for the smaller assessments as well. It is no longer possible or reasonable to expect the park warden service to carry the burden of responsibility for ensuring assessments are complete and accurate. The task force recommendations are intended to ensure that each park has the expertise and processes to professionally apply EARP. EARP coordinators at each park must have ready access to members of an interdisciplinary team as required. This should include resource specialists within and outside of the CPS, law enforcement and public safety expertise and the involvement of other sub-activities such as general works and visitor services.

- **change the one person EARP which currently exists at each park, to a one person coordination of an interdisciplinary team.** (58)

- **assign responsibility for EARP review at each park to a Park Warden Resource Management Specialist and support development of expertise through training, networking with other experts, peer review, etc.** This may mean a dedicated EARP specialist in some parks. (59)

- **integrate EARP into the existing development review process to ensure evaluation of proposals at the conceptual level.** (60)

The roles of the parks and the regional office in EARP require some clarification. In doing so however, it must be recognized that the development of environmental assessment science is essential and must ensure the transfer of mitigation data and processes into decision making, and park protection and operation. Currently environmental assessment science and the management of impacts of large projects are acknovledged externally as one of the CPS WR's most significant strengths. (Don't throv the baby out with the bath water.)

- **consolidate the responsibility for EARP at the regional office and direct regional functional responsibility toward the development of environmental assessment science, the conduct of EIA's, and the consistent and appropriate application of EARP throughout the region.** (61)

- **reduce the WRO EARP administrative and post office functions and transfer responsibility and accountability for most environmental assessments to parks.** WRO should audit random EARP documents to ensure consistency and enhance credibility. (62)

- **expand environmental assessment to include review of significant projects on adjacent lands, and the completion and review of**

construction and post construction assessments for sensitive projects. (63)

- develop communication strategies for dissemination of significant EARP results and accomplishments. (64)

- establish a working group for EARP. (65)

- develop generic EARP guidelines for facility development, maintenance and mitigation, for both external and internal proponents. (66)

- establish a program of research into cumulative impacts of developments including those inside and on the periphery of parks. (67)

On-going training and development of staff associated with EARP will continue to be a priority.

- establish, in consultation with FEARO, an appropriate curriculum to ensure CPS staff are trained in the proper application and review of screenings. (68)

- establish formal training for staff required to present park data and analysis in panel or court situations. This will include evidence gathering and presentation, and extensive communication skills. (69)

- establish an environmental education/sensitization program for leaseholders, concessionaires and businesses in parks. (70)

- establish reduction of environmental impact as a key criteria for the allocation of resources for recapitalization projects. (71)

The cost implications of EARP, particularly the O&M implications, from screening to post construction and the implications of private sector proposals will become an increasing problem given continued restraint.

- ensure the resource (PY and $) implications of EARP are adequately addressed in PIP presentations. Factors such as data gathering, screening development, mitigation review and implementation, and construction and post construction monitoring must be included. (72)

- establish cost recovery strategies for private sector EARP which do not compromise the credibility of environmental assessment results. (73)

3.8 ADMINISTRATION AND MANAGEMENT PROCESSES

- develop objective criteria and processes to review priorities and resource allocation within the CPS WR. (74)

- define, as part of zero base reviews and work planning, the implementation cost of existing plans and directives, and discard or

adjust those that cannot be funded and do not proceed with proposed plans and directives if implementation funds are not provided. (75)

PMPs and PCPs must provide more specific direction for natural and cultural resource protection. Section 2.9 highlighted some weaknesses with our existing zoning criteria.

- in consultation with PHQ develop more sophisticated zoning criteria to enable zoning to effectively protect park resources. (76)

- expand the scope of PCPs to include prioritization of resource protection/management, direction for O&M activities such as law enforcement and public safety, regional integration, involvement of other sub-activities, communication strategies, implementation schedules, etc. (77)

In addition to the Auditor General's concerns that we do not implement some plans, with some notable exceptions (e.g. park and bear management plans) the CPS WR seldom evaluates the effectiveness of plans.

- develop and apply an evaluation and monitoring process of all planning exercises. (78)

- develop a schedule for completion of all RD&A's and ARD&A's and emphasize the analysis component of these documents. (79)

- review directives and regulations through group discussions rather than the current post office process. (80)

3.9 LAW ENFORCEMENT

The Task Force was able to identify a number of relatively detailed recommendations for law enforcement. This level of detail is a reflection of the consideration evaluation that law enforcement has received at both the regional and national levels. This detail should not be construed as a call to become a cynical armed camp. The recommendations are put forward to address some aspects that currently hinder our activities, or require additional attention.

National direction as to the CPS's role must be clearly defined.

- pursue the finalization and implementation of the National Directive on law enforcement to provide guidance to the program and to reaffirm emphasis on protection of the resources. (81)

- audit the current law enforcement program to ensure consistency with the National policy and to standardize common practices, results and programs, within the region. (82)

Current administrative and financial processes are not timely, cost effective or sufficiently flexible.

- develop and implement a voluntary fine structure for NPA offences. (This offers significant potential for resource savings.) (83)

- implement a form of standing advance to allow for immediate and reasonably confidential access by the regional enforcement specialist. (within the RDG's authority) (84)

- implement a contingency fund at the park level to deal with escalating, extraordinary court and investigation costs. (85)

The complexity of law enforcement prosecutions has been identified. At this time Crown Prosecutors assigned to CPS enforcement cases are not sufficiently experienced or sensitized to environmental protection issues. It is essential that our prosecutors are credible and knowledgeable on technical issues for key cases.

- work with the Department of Justice to establish specific prosecutorial expertise for pollution and the new NPA protected species offences. (86)

The current department MOU with the RCMP does not address site specific issues. Contacts with other enforcement agencies should be expanded (i.e. Fish and Wildlife Agencies).

- develop MOU's between individual parks and local RCMP detachments to clarify roles and responsibilities expanding on the existing RCMP and CPS national MOU. (87)

- establish field and intelligence contacts internally and with other wildlife and environmental law enforcement agencies regionally, nationally and internationally. (88)

- expand the law enforcement perspective to include all environmental regulations, and not just wildlife. (89)

- establish or link with existing poaching prevention programs on a region wide basis (e.g. Crime Stoppers, Park Watch, Outdoor Observer). (90)

The law enforcement function within the CPS must operate as a cohesive, credible unit within the region and must be organized in an efficient manner.

- develop law enforcement specialists at the park and region. (91)

- establish a law enforcement working group and advisory forum to enhance communications, peer review, regional direction, training standards and delivery, information exchange and standardization of procedures, policies and equipment. (92)

- develop the communication skills of Park Wardens for the purpose of presenting court evidence, participating in inquests and inquiries, and dealing with media. (93)

The CPS will become more proactive in the law enforcement field. The CPS must recognize that law enforcement specialists will conduct a majority of their intelligence gathering and investigations beyond the boundaries of the parks (revised PAS and dedicated resources are required).

- develop information regarding wildlife offenders using external and internal linkages and intelligence processes. (94)

- develop law enforcement education/prevention programs with an emphasis on being more positive and preventative rather than punitive. (95)

3.10 PUBLIC INTERFACE

As a means of maintaining and increasing public support for protection, emphasis will have to be placed on communicating the values of protecting natural and cultural resources to the public.

A combination of the increasing economic emphasis on the role of tourism, a smaller percentage of park visitors being Canadians, and a larger percentage of the public not necessarily holding the same views on the values of National parks, will require broad based communication programs to illustrate the nature and benefits of protecting natural and cultural resources of Canada. In the past, the emphasis of most resource related (interpretation, resource management, etc.) has been on park visitors and audiences in areas adjacent to individual parks. The trends to less Canadians visiting parks and the increasing recognition of the value to Canadians of protecting resources suggest that the focus of communication programs change to include more emphasis on the general Canadian public.

Communication can be a poverful tool in achieving the CPS mandate of resource protection. This will require a pro-active approach both inside and outside of national parks. Inside the parks, communication can be the means by which visitors, the private sector, and park staff are encouraged to support and be actively involved in protecting park resources and minimizing impacts. Outside the parks, communication can be a means of making the general public aware of the value of protecting natural and cultural resources, influencing attitudes on and building and maintaining public support for resource protection, and communicating the role parks play in contributing to the environmental well being of Canadians.

- develop a strategy for communicating the resource management and protection messages, including the identification of the roles of respective parks, sub-activities, and WRO in delivering the messages. (96)

- develop expertise in the specialized field of environmental education and provide training for all staff involved with the media to ensure a positive and credible image is presented to the public. (97)

- **increase the effectiveness of communication programs by involving staff with current knowledge of natural and cultural resources.** (98)

- **initiate broad and competent review of media materials on topics of resource protection, management, and natural history developed for public distribution as a means of maintaining high quality, accuracy, and public credibility.** (99)

Outside Parks

The shortage of resources due to the continuing period of fiscal restraint will present a challenge in determining cost efficient means of distributing CPS protection messages to the Canadian public. While the planning and preparation of the messages to be communicated will involve CPS staff, it will be necessary to cooperate with organizations who have the ability for broad distribution of messages and media. Obvious choices include educational institutions, public media (TV, Radio, and Print), cooperating associations, and other special interest groups.

Educational institutions have some useful attributes as partners in communicating protection related messages. It is possible to reach broad sections of the public through the educational system, students offer good opportunities for influencing positive values towards protection of park resources and environmental education, and the educational system is interested in basing programs on Canadian content and examples.

- **identify opportunities for cooperating with educational institutions in the development of curriculum, which include topics based on CPS resources and messages.** (100)

- **develop contacts with educational institutions at the local, regional and provincial levels to establish a basis for cooperation on joint ventures.** (101)

- **research the potential for cooperating with the producers of educational textbooks and materials to see if there is a way of incorporating CPS resources and messages.** (102)

The increase in environmental consciousness will provide the CPS with the opportunity for maintaining and increasing the public profile of CPS protection activities. The media will be more likely to pay attention to "environmental issues" as a means of satisfying the interests of their audiences. There will however be increased competition for attention from other areas of environmental interest.

- **cooperate on a selective basis with the writers, researchers and producers of media in order to create public awareness of park resources and their protection and management.** (103)

- assess the needs of writers, researchers and producers in producing

media to determine ways the the CPS can encourage and support their activities.

- **develop communication expertise and plans for dealing with the media in adverse circumstances or during resource related crises (damage control).** (104)

Inside Parks

- **promote stevardship in all CPS staff by: building this into orientation programs for nev employees; reinforcing this in internal communications like staff nevsletters, etc.; promoting greater cooperation amongst sub-activities to produce effective communication programs aimed at protecting park resources; develop a technical nevsletter as a means of encouraging staff to contribute to the exchange of information within the CPS; and, use CPS staff as instructors on courses aimed at fostering increased protection of resources.** (105)

- **communicate the role of the park in resource protection to park residents and the private sector, with an emphasis on front-line staff who are in contact with the public,** (106) by:

- develop media and materials to be used in training and sensitization programs for leaseholders, concessionaires, and businesses.

- cooperate and participate in the development and presentation of training programs for staff of leaseholders, concessionaires, and other businesses.

- participate in outside groups and organizations which offer opportunities to communicate the protection role of parks.

There is potential for the use of volunteers for support in resource management and protection activities. There are some changes in attitudes required for this to happen including the recognition that use of volunteers is more than the responsibility of Interpretation, the role of staff is evolving to facilitators rather than "do"ers, and recognition of the resources required for supporting, supervising, and coordinating volunteer efforts.

- **assess the potential for use of volunteers in support of resource protection and management activities and prepare descriptions of areas where volunteers can meet identified needs.** (107)

3.11 HUMAN RESOURCE MANAGEMENT

Existing organizational structures reflect a traditional bureaucratic pyramid with vertical communication lines. This structure has restricted horizontal communication, discourages team building, limited risk taking and implies that career development is only vertical.

- adopt the following principles when evaluating the organizational models; (108)

- organizations must be flatter (fewer levels of supervision and more individuals with different classifications reporting to any one level);
- career development ladders/paths must be defined and must include lateral opportunities;
- communication must follow a flexible matrix of vertical and horizontal lines, however, individuals report to only one supervisor;
- activities must not be duplicated;
- greater delegation and accountability means having the ability and authority as well as the responsibility to solve problems (We will no longer say "I have identified the problem but I do not have any solutions");
- team work must occur within and between sub-activities;
- human resource management must be the responsibility of all managers;
- a greater variety of categories and classification levels must exist; and
- succession paths and training requirements must be "built in".

The complexity of resource and protection issues and the rapid growth in knowledge now means that it is impossible to be an expert in all areas of resource management and protection. The days of all park wardens being generalists drew to a close some time ago as evidenced by the variety of specialist type job descriptions that now prevail. To be effective and provide continued leadership in managing protected areas, this trend to specialization must be recognised and effectively integrated into our organization. Although the majority of Park Warden positions will remain multi-disciplinary in content (generalist), the Task Force is recommending the establishment of some park level specialist positions including; public safety, law enforcement and resource management within the Warden Service (Refer to Diagram #1).

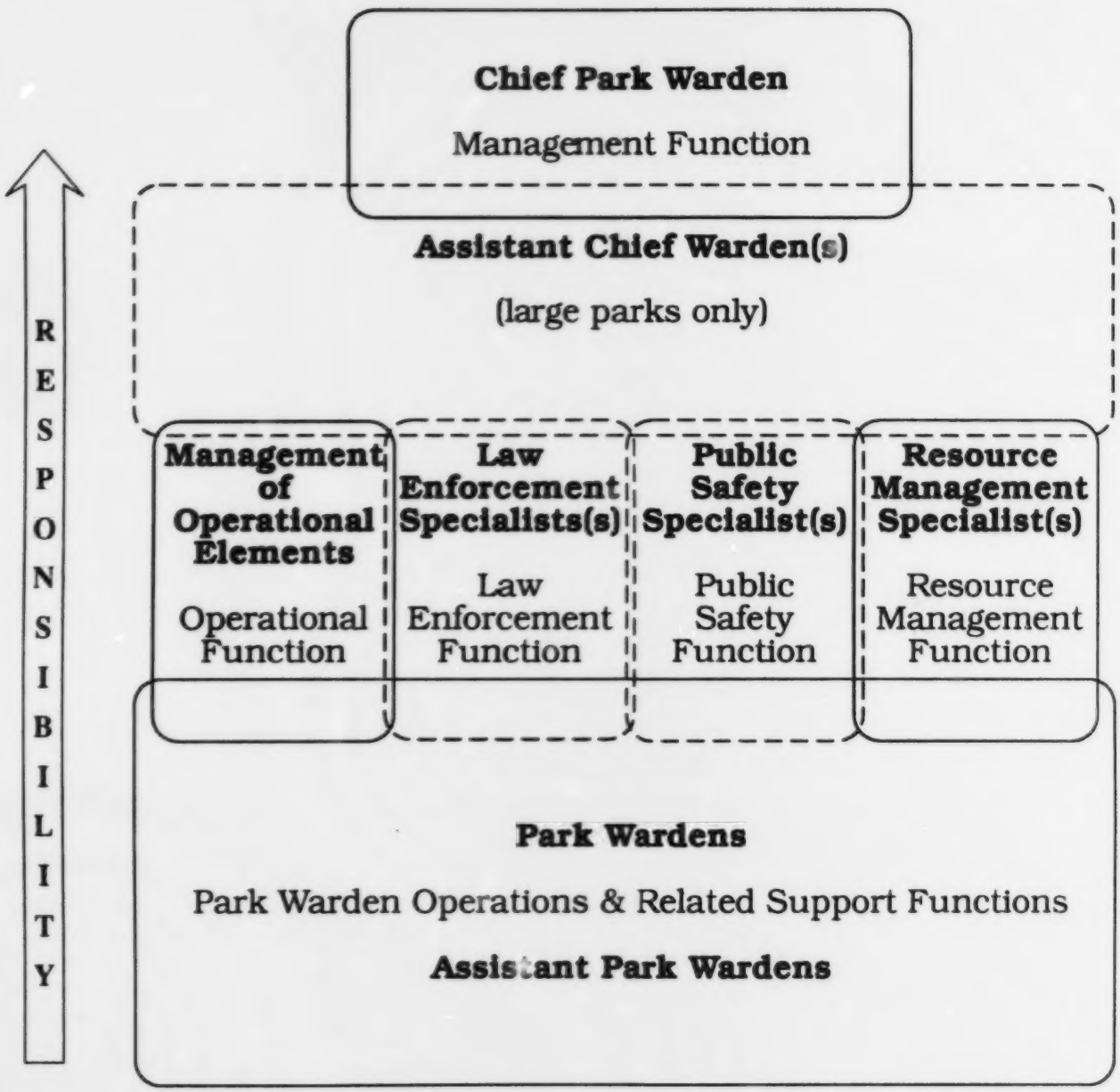
Specialization is also required at the regional level in order to provide functional coordination, support to park specialists and services in areas where it is logistically not feasible to specialize at the field level. Several key functions have been identified by the Task Force.

Notwithstanding, it is essential that specialists have an understanding of other functional areas and the ability to analyze broad issues.

The need to improve "park science" raises the question of whether or not the CPS WR should create a separate science unit or sub-activity, or integrate science into the existing resource conservation sub-activity. The Science and Protection Task Force dismisses the first alternative. The USNPS and DFO have science units separate from the resource management function. In the case of Glacier National Park, Cliff Martinka, Senior Park Scientist clearly separates his responsibility from that of the Ranger Service seeing his role as being involved in the development of new science and theory. Glacier is now establishing resource management specialists (most with a MSc. level of

Conceptual Model

Diagram 1



education) within the Ranger Service to improve resource management. Both the Senior Scientist and the Chief Ranger are of the opinion that the existence of a separate science unit has inhibited the development of competent resource managers. By default it was easier to delegate an applied problem to the scientist rather than developing resource management expertise. A similar conclusion was reached after meeting with representatives of DFO. The foregoing is not to say that a separate Science Unit is not without some advantages. Those advantages focus on developing new scientific theory over the long term. It is important to ensure the development of science and its application into all management and protection activities.

- **retain resource management and protection, required specialization and related natural resource research as an integral responsibility of the Warden Service and its regional counterpart.** (109)

- **designate Park Warden specialists as Park Warden - Law Enforcement Specialist; Park Warden - Resource Management Specialist; Park Warden - Public Safety Specialist etc.** (110)

- **establish park and regional organizations that integrate the three areas of specialization (ie. public safety, law enforcement and resource management);** (111)

- **establish at the park level a number of specialists.** The disciplines of specialization will vary depending on the park requirements (e.g. wildlife, EARP, vegetation management, aquatic biology, hydrology, cultural resources, etc.). The classification of specialists and the related minimum requirements will vary. (refer to definitions) (112)

The requirement for specific specialists will vary from park to park. For instance, Waterton would require the services of a fisheries biologist but there would not be a requirement for a CFT specialist in that park. Therefore, some specialists although residing in a specific park, may be shared by a number of parks. This approach is an alternative to staffing all shared positions at the regional office. In the past sharing of resources between parks has not been common - this will require a fundamental change in attitude.

The parks will be held accountable for delivering credible resource management programs. Regional functions will need to be more dedicated to supporting and ensuring consistency of activities in the field. There will be less emphasis on performing administrative tasks.

- **incorporate a significant component of direct field activity in the regional specialist positions** to remain current, credible and valuable to the organization. (113)

- **staff selected specialist positions at the regional level on a rotational basis with park specialists to keep regional functions current and provide career development opportunities for park specialists.** (114)

- **adjust the regional organization to fulfill essential functions**

including EARP, science management, staff development, regional integration, law enforcement, public safety, data base management and resource management. The suggested minimum academic requirements for regional resource management specialists would be the MSc. level with experience and credibility sufficient to provide regional leadership; some PhD level expertise will be required in order to achieve recommendations. (115)

Our resource management problems will increasingly be the result of external influences. Therefore resource management and protection will depend on effective interaction with our neighbours (regional integration). The traditional focus must expand from inward looking (within individual parks, sub-activities and region) to include a more proactive, outward looking management style. This concept is illustrated in Diagram 2 and 3.

- revise the focus at park and regional levels to include greater anticipation and participation in external processes and influences and linkages with other sub-activities. (116)

Regional integration has traditionally been perceived as an executive responsibility, however, it has now become an essential part of day to day park operations.

- involve working level staff in regional integration. (117)

- develop staff to think in a broad flexible manner, to have knowledge and appreciation of outside organizations and to have strong communication skills. (118)

Consistent with PSC 2000 observations, lifestyle constraints and change combined with increased competition for skilled staff require innovations in human resource management, recruiting and training. Traditional views of training have been very limited in scope and variety and have been hampered by limited funding. The CPS should expand its concept of training opportunities and methods in order to develop and maintain essential skills and ensure career development.

- identify and implement region-wide functional training requirements, training needs of individuals and delivery methods for law enforcement and resource management similar to the model currently proposed for public safety. (119)

- establish memberships and become active in professional organizations related to resource protection and management. (120)

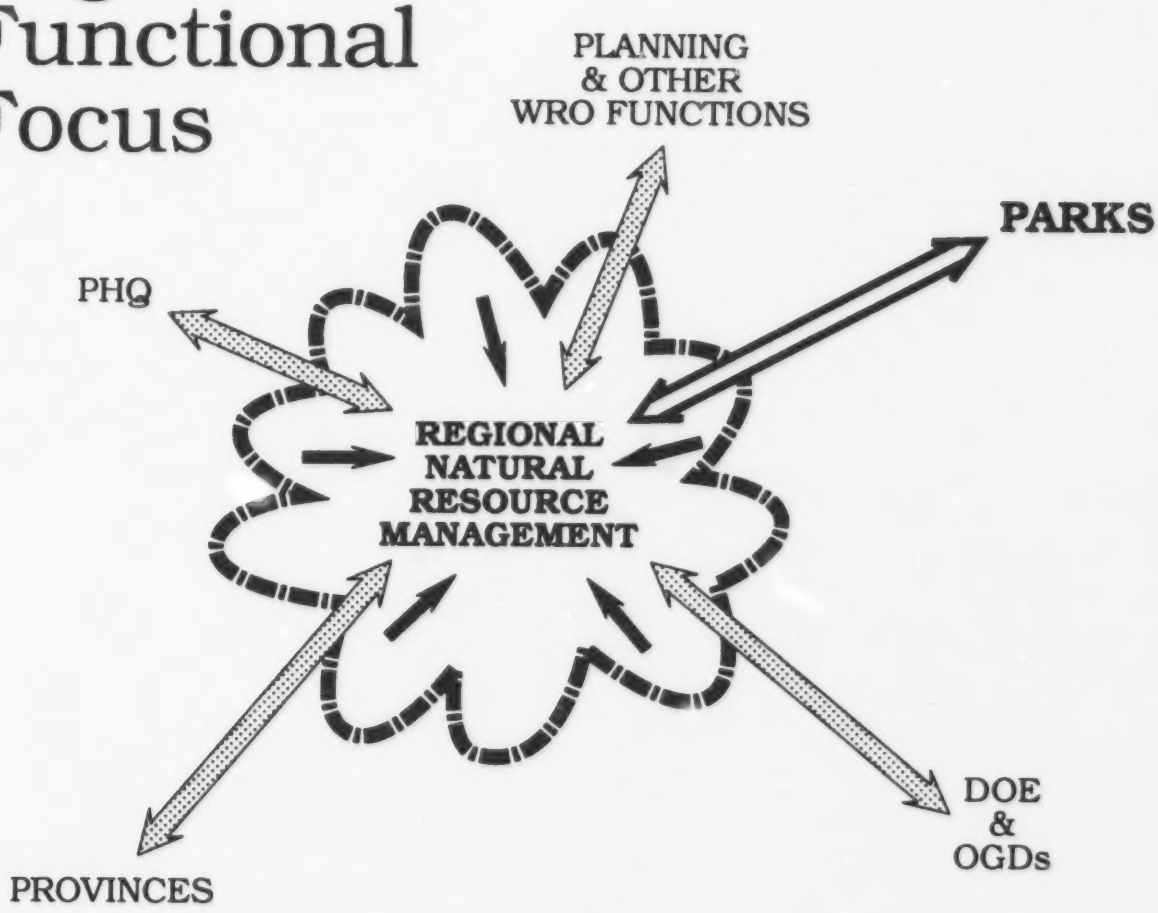
- attend and actively contribute to conferences and workshops. (121)

- develop internal and external secondments and special assignments. (122)

- develop internal instructional capability to permit staff to transfer CPS skills, internally and externally. (123)

Regional Functional Focus

Diagram 2



Because Heritage areas cannot be managed in isolation from the regions in which they are situated, the CPS will seek to integrate its park and site programs with the surrounding landscapes, districts and communities to encourage the achievement of mutually supportive environmental, conservation, social and cultural objectives (CPS draft policy, 1990).

- provide increased opportunities for educational leave to encourage general upgrading of resource protection staff and enhance CPS capability in identified areas of specialization. (124)

- develop specific and effective training for priority referrals. (125)

- establish links with educational institutions and OGDs to facilitate re-training opportunities and influence to curriculum development to better meet future staff needs. (126)

Innovative recruitment techniques will become necessary in order to meet future challenges. Required training for CPS staff will continue to tax O&M resources at the park and regional level. The resources presently expended to train new staff just so they are equipped to be operational all but drains most training budgets. The present one stage selection process does not allow for adequate examination of personal suitability or potential given the multi-disciplinary nature of the Warden Service role.

Until the CPS develops it's own body of specialists, it will be necessary to borrow assistance from external agencies or institutions to evaluate and recruit highly knowledgeable, scientifically credible people into specialized positions.

Three issues now face the CPS WR - first, how to establish and staff specialist positions over the next five years; second, how to implement improvements in regional functional responsibilities; and, third how to ensure that recruitment of entry level staff will provide a work force with the ability and training that can assume specialist roles in the more distant future. With respect to the first two,

- establish two working groups - one to develop a comprehensive human resource plan addressing the establishment and staffing of specialist positions and the other to develop a strategy for implementing the recommendations dealing with the regional functional responsibilities. (127)

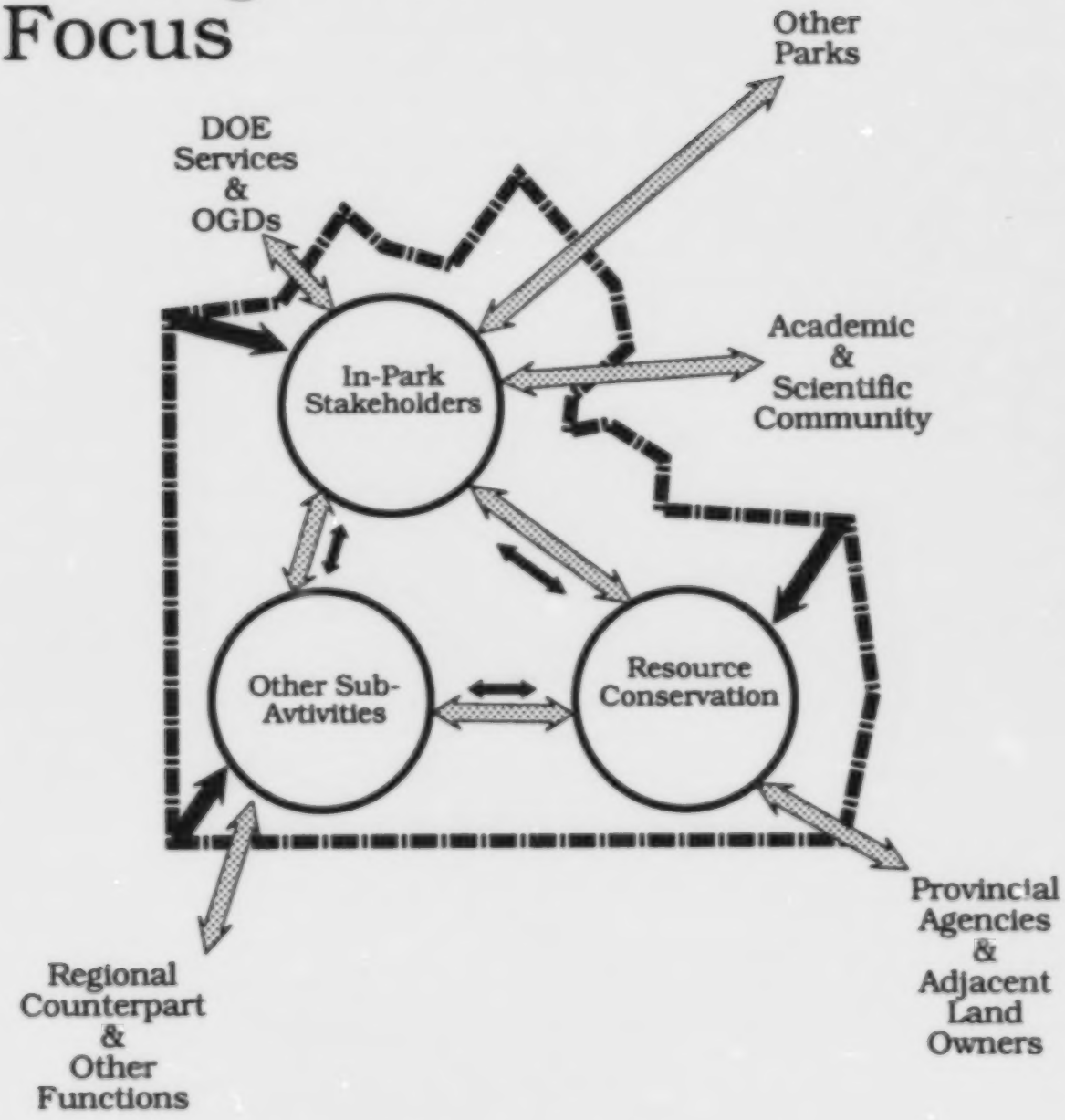
With respect to the third issue,

- develop a multi-stage selection process. This process would include a re-examination of recruiting qualifications and an evaluation of potential employees for selection at all stages (paper board, oral interview, training school, field training). (128)

- acknowledge staff who make significant contributions, including contribution of volunteer time, to the protection of heritage resources. (129)

Park Management Focus

Diagram 3



4.0 ANALYSIS

4.1 Criteria

The analysis of the recommendations was completed by sorting the recommendations by strategic objective and by assigning each a rating as to benefit, cost, and implementation priority. A brief discussion of the significant points contained in each listing is presented. Of particular significance are those recommendations that can be implemented within 8 months. The recommendations that are fundamentally important and will have substantial benefit within 5 years represent will be the most important to include in revisions to the Reality Document.

The folloving criteria were used in the analysis of the recommendations.

Benefit - an estimate of benefit to protection of park resources

5 = substantial benefit realized within 3 years
4 = substantial benefit realized within 3 to 5 years
3 = modest benefit realized within 5 years or substantial benefit 5 years+
2 = modest benefit within 5 years and beyond
1 = modest benefit 5 years+
0 = will not be used (all recommendations must have some benefit)

Cost - an estimate of cost to implement and/or maintain

5 = virtually no additional cost and will result in savings
4 = virtually no additional cost
3 = some cost but could be addressed by modest re-allocation of resources
2 = substantial costs but may not be recurring
1 = substantial costs, but recurring costs
0 = very substantial costs

Implementation Priority

A = Highly visible, shov commitment to the strategic objective, can be delivered within 8 months
B = Fundamentally important, results in improved resource protection at the field level, can be completed within 5 years
C = Will become important within 5 years
D = Will become important within 5 to 10 years

4.2 RECOMMENDATIONS WITH ANALYSIS (ALL CRITERIA)

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
1	Aware of global change	1	3	1.4	D
2	Change implication mgt of resource	1	4	1.3	D
3	Disposal/vaste guidelines	3	1	1.5	C
4	Env. sensitive products	5	4	1.5	A
5	Env. sensitive practices	5	5	1.5	A
6	Suitable products and practices	5	4	1.5	A
7	Internal pollution regs compliance	2	0	1.5	B
8	Pollution links OGDs	2	2	1.5	B
9	Toxic spill plan	2	3	1.5	B
10	Recycling in park materials	3	1	1.5	B
11	Env. sensitive operation/maintenance	3	1	1.5	B
12	Alternate energy sources	1	1	1.5	D
13	MOU's regional development	3	4	5.3	B
14	regional integration in PMP, PCP	3	3	5.3	A
15	Coordinate res. mgt. concepts	3	3	5.3	B
16	Peripheral lands data base	3	1	1.2	C
17	Socio-economic input	4	3	1.3	B
18	Socio-economic data base	4	1	1.4	C
19	Ecological integrity criteria	2	3	1.2	C
20	Ecosystem boundaries	2	3	1.2	C
21	Promote ecological research	3	4	1.2	B
22	Promote impact research	3	4	1.2	B
23	Inventory intl/extl threats	2	3	1.4	C
24	Protection priorities	5	4	1.3	B
25	Ecological benchmark criteria	1	4	1.2	D
26	Establish ecological benchmarks	1	2	1.2	D
27	Resource management specialists	5	3	1.2	B
28	Science policy implementation	5	5	1.2	A
29	Communicating science info	4	3	1.2	B
30	Establish peer reviev	5	5	1.2	B
31	Park Consultative forums	5	4	1.2	B
32	Regional Science committee	5	5	1.2	A
33	Scientific Advisory Forums	5	4	1.2	B
34	Regional science management function	5	4	1.2	B
35	list potential research	5	5	1.2	A
36	Reduce research barrier	3	4	6.1	A
37	Contract flexibility	5	5	6.1	A
38	Research facility support	3	2	1.2	B
39	Graduate funding	4	3	1.2	A
40	NSERC liaison	3	5	1.2	B
41	Adjunct professorship	2	3	1.2	D
42	Coop Resource institutes	2	2	1.2	D
43	Data mgt program	4	0	1.3	B

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
44	GIS implementation	4	0	1.3	B
45	Models and expert systems	4	0	1.3	C
46	Regional data mgt function	5	3	1.3	B
47	Coop data links	2	2	1.3	C
48	List of OGD/DOE expertise	3	5	1.2	A
49	DOE/OGD MOUs	3	3	1.3	C
50	OGD/DOE advisory role	5	5	1.2	B
51	CPS advisory role to OGD/DOE	3	3	1.2	D
52	Speakers forum	3	3	5.3	C
53	Links with DOE Science Policies	3	4	6.2	C
54	Joint DOE training	5	3	1.2	B
55	Leadership mgt protected lands	1	3	1.5	D
56	USNPS relations	3	4	1.5	C
57	Nev park negotiations	3	5	1.5	D
58	Earp team concept	5	5	1.3	A
59	Earp specialist	5	4	4.5	B
60	Earp in reviev committees	5	5	1.3	A
61	Earp science	5	5	1.3	B
62	Earp admin.	3	5	1.3	A
63	Expanded Earp	5	3	1.3	B
64	Earp communication	2	4	1.3	C
65	Earp working group	5	5	1.3	A
66	Generic earp guidelines	5	3	1.3	B
67	Cumulative impact	3	2	1.3	C
68	FEARO training	5	3	1.3	C
69	Earp panel presentations	3	4	4.4	C
70	Stakeholder stevardship	3	4	1.3	C
71	EARP and recapitalization	3	3	1.3	C
72	EARP requirements PIPs	5	3	1.3	A
73	EARP cost recovery	3	5	1.3	C
74	Priorize resource allocation	5	5	6.1	B
75	Implem costs - plans, directives	2	5	6.1	C
76	Spohisticated zoning	3	5	1.3	B
77	Expand scope of PCP	4	4	1.3	B
78	Evaluate/monitor plan exercises	3	4	6.1	C
79	Complete RD&A, ARD&A	4	1	1.3	B
80	Reviev Directives/Regs	2	5	6.1	C
81	National L/E directive	3	3	3.1	B
82	Audit L/E program	2	5	6.1	A
83	Voluntary fines	5	5	6.1	B
84	Expand standing advance	2	5	6.1	C
85	Contingency fund	5	2	1.3	B
86	Knovledgeable prosecutors	5	5	1.3	A
87	Local RCMP MOU	2	4	5.3	C

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
88	Establish contacts	3	4	5.3	C
89	Expand L/E perspective	3	4	1.3	C
90	Poaching prevention program	2	3	1.3	C
91	L/E specialist	4	3	1.3	B
92	L/E advisory forum	3	4	1.3	B
93	Expert witness	3	4	4.4	C
94	Poachers	3	3	1.3	C
95	Subactivity involvement L/E	3	3	1.1	C
96	Resource messages id/priorization	5	3	1.1	B
97	Env. education	4	3	4.5	B
98	Increase effective communications	4	4	1.1	B
99	Peer review of media	3	4	1.1	C
100	CPS curriculum messages	3	4	1.1	D
101	Coop educational institutes	2	3	1.1	D
102	Influence education materials	2	4	1.1	C
103	Media cooperation	5	3	1.1	B
104	Communication damage control	5	5	4.4	A
105	Protection stewardship	5	4	1.1	B
106	Private sector stewardship	3	3	1.1	B
107	Resource protection volunteers	3	3	1.1	B
108	Organization principles	3	5	4.5	B
109	Warden Service role	5	5	4.5	A
110	W/S specialist designation	5	5	4.5	A
111	Integrate specialization	5	5	4.5	B
112	Establish specialization	5	3	4.5	B
113	WRO field involvement	5	3	4.4	B
114	Rotational development	5	3	4.4	B
115	WRO functional roles	5	3	4.4	B
116	Revise focus	5	3	4.4	B
117	Working staff into reg. integration	5	3	1.4	B
118	Flexible staff	4	3	4.4	B
119	Training plan	5	2	4.4	B
120	Professional memberships	5	5	4.4	A
121	Conferences and workshops	3	5	4.4	A
122	Secondments and assignments	3	3	4.4	B
123	Staff instructors	3	5	4.4	B
124	Educational leave	5	2	4.4	B
125	Priority referral	3	5	4.4	C
126	Curriculum development	4	5	4.4	B
127	Working groups - specialists & WRO	5	5	4.5	A
128	Recruitment	5	3	4.4	B
129	Volunteer time	5	5	4.4	A

4.3 RECOMMENDATIONS SORTED BY STRATEGIC OBJECTIVES

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
1.0	**Enhancing Science Through Protection**				
1.1	**Promote the philososphy of stevardship with the public and CPS staff**				
105	Protection stevardship	5	4	1.1	B
95	Subactivity involvement L/E	3	3	1.1	C
107	Resource protection volunteers	3	3	1.1	B
98	Increase effective communications	4	4	1.1	B
99	Peer reviev of media	3	4	1.1	C
100	CPS curriculum messages	3	4	1.1	D
103	Media cooperation	5	3	1.1	B
101	Coop educational institutes	2	3	1.1	D
102	Influence education materials	2	4	1.1	C
106	Private sector stevardship	3	3	1.1	B
96	Resource messages id/priorization	5	3	1.1	B
1.2	**Strengthen the scientific program to ensure protection of park resources**				
54	Joint DOE training	5	3	1.2	B
42	Coop Resource institutes	2	2	1.2	D
41	Adjunct professorship	2	3	1.2	D
48	List of OGD/DOE expertise	3	5	1.2	A
50	OGD/DOE advisory role	5	5	1.2	B
16	Peripheral lands data base	3	1	1.2	C
40	NSERC liaison	3	5	1.2	B
39	Graduate funding	4	3	1.2	A
19	Ecological integrity criteria	2	3	1.2	C
20	Ecosystem boundaries	2	3	1.2	C
21	Promote ecological research	3	4	1.2	B
22	Promote impact research	3	4	1.2	B
38	Research facility support	3	2	1.2	B
51	CPS advisory role to OGD/DOE	3	3	1.2	D
25	Ecological benchmark criteria	1	4	1.2	D
26	Establish ecological benchmarks	1	2	1.2	D
27	Resource management specialists	5	3	1.2	B
28	Science policy implementation	5	5	1.2	A
29	Communicating science info	4	3	1.2	B
30	Establish peer reviev	5	5	1.2	B
31	Park Consultative forums	5	4	1.2	B
32	Regional Science committee	5	5	1.2	A
33	Scientific Advisory Forums	5	4	1.2	B
34	Regional science management function	5	4	1.2	B
35	List potential research	5	5	1.2	A

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
1.3	**Ensure effective decision making that achieves protection of the park ecosystem**				
86	Knowledgeable prosecutors	5	5	1.3	A
68	FEARO training	5	3	1.3	C
24	Protection priorities	5	4	1.3	B
85	Contingency fund	5	2	1.3	B
89	Expand L/E perspective	3	4	1.3	C
17	Socio-economic input	4	3	1.3	B
90	Poaching prevention program	2	3	1.3	C
43	Data mgt program	4	0	1.3	B
44	GIS implementation	4	0	1.3	B
45	Models and expert systems	4	0	1.3	C
46	Regional data mgt function	5	3	1.3	B
47	Coop data links	2	2	1.3	C
91	L/E specialist	4	3	1.3	B
49	DOE/OGD MOUs	3	3	1.3	C
92	L/E advisory forum	3	4	1.3	B
79	Complete RD&A, ARD&A	4	1	1.3	B
94	Poachers	3	3	1.3	C
77	Expand scope of PCP	4	4	1.3	B
2	Change implication mgt of resource	1	4	1.3	D
73	EARP cost recovery	3	5	1.3	C
72	EARP requirements PIPs	5	3	1.3	A
71	EARP and recapitalization	3	3	1.3	C
58	Earp team concept	5	5	1.3	A
70	Stakeholder stewardship	3	4	1.3	C
76	Sophisticated zoning	3	5	1.3	B
60	Earp in review committees	5	5	1.3	A
61	Earp science	5	5	1.3	B
62	Earp admin.	3	5	1.3	A
63	Expand Earp	5	3	1.3	B
64	Earp communication	2	4	1.3	C
65	Earp working group	5	5	1.3	A
66	Generic earp guidelines	5	3	1.3	B
67	Cumulative impact	3	2	1.3	C
1.4	**Be proactive in our response to future threats to park resources**				
1	Aware of global change	1	3	1.4	D
23	Inventory intl/extl threats	2	3	1.4	C
117	Working staff into reg. integration	5	3	1.4	B
18	Socio-economic data base	4	1	1.4	C

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
1.5	**Carry out all aspects of our work in a manner that exemplifies our regional values, sound environmental practices, principles of sustainable development and contributions to science**				
5	Env. sensitive practices	5	5	1.5	A
6	Suitable products and practices	5	4	1.5	A
4	Env. sensitive products	5	4	1.5	A
3	Disposal/waste guidelines	3	1	1.5	C
55	Leadership mgt protected lands	1	3	1.5	D
7	Internal pollution regs compliance	2	0	1.5	B
8	Pollution links OGDs	2	2	1.5	B
9	Toxic spill plan	2	3	1.5	B
10	Recycling in park materials	3	1	1.5	B
57	New park negotiations	3	5	1.5	D
11	Env. sensitive operation/maintenance	3	1	1.5	B
12	Alternate energy sources	1	1	1.5	D
56	USNPS relations	3	4	1.5	C
3.0	**Balancing the Parks and People Interface**				
3.1	**Appropriately manage the type and level of visitor use in parks**				
81	National L/E directive	3	3	3.1	B
4.0	**Building Staff Excellence**				
4.4	**Provide for and encourage training and development opportunities...**				
129	Volunteer time by staff	5	5	4.4	A
104	Communication damage control	5	5	4.4	A
128	Recruitment	5	3	4.4	B
113	WRO field involvement	5	3	4.4	B
126	Curriculum development	4	5	4.4	B
125	Priority referral	3	5	4.4	C
124	Educational leave	5	2	4.4	B
93	Expert witness	3	4	4.4	C
123	Staff instructors	3	5	4.4	B
122	Secondments and assignments	3	3	4.4	B
121	Conferences and workshops	3	5	4.4	A
114	Rotational development	5	3	4.4	B
120	Professional memberships	5	5	4.4	A
119	Training plan	5	2	4.4	B
69	Earp panel presentations	3	4	4.4	C
115	WRO functional roles	5	3	4.4	B
118	Flexible staff	4	3	4.4	B
116	Revise focus	5	3	4.4	B

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
4.5	**Attract and deploy staff resources to realize the Western Region's mission**				
112	Establish specialization	5	3	4.5	B
127	Working groups - specialists & WRO	5	5	4.5	A
59	Earp specialist	5	4	4.5	B
97	Env. education specialists	4	3	4.5	B
108	Organization principles	3	5	4.5	B
109	Warden Service role	5	5	4.5	A
110	W/S specialist designation	5	5	4.5	A
111	Integrate specialization	5	5	4.5	B
5.3	**Foster positive relations with other agencies and local governments responsible for the management of lands adjacent to the National Parks...**				
13	MOU's regional development	3	4	5.3	B
88	Establish contacts	3	4	5.3	C
15	Coordinate res. mgt. concepts	3	3	5.3	B
14	regional integration in PMP, PCP	3	3	5.3	A
87	Local RCMP MOU	2	4	5.3	C
52	Speakers forum	3	3	5.3	C
6.1	**Ensure that the systems and processes we use are streamlined in order to be effective in supporting the Strategic Plan.**				
36	Reduce research barrier	3	4	6.1	A
37	Contract flexibility	5	5	6.1	A
74	Priorize resource allocation	5	5	6.1	B
75	Implem costs - plans, directives	2	5	6.1	C
78	Evaluate/monitor plan exercises	3	4	6.1	C
80	Review Directives/Regs	2	5	6.1	C
82	Audit L/E program	2	5	6.1	A
83	Voluntary fines	5	5	6.1	B
84	Expand standing advance	2	5	6.1	C
6.2	**Ensure that all our programs and activities are managed in such a way that they support the Strategic Plan.***				
53	Links with DOE Science Policies	3	4	6.2	C

* All the recommendations support the Strategic Plan, however, this objective is specifically supported through this recommendation.

4.4 RECOMMENDATIONS THAT ARE HIGHLY VISIBLE AND CAN BE IMPLEMENTED WITHIN 8 MONTHS

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
4	Env. sensitive products	5	4	1.5	A
5	Env. sensitive practices	5	5	1.5	A
6	Suitable products and practices	5	4	1.5	A
14	regional integration in PMP, PCP	3	3	5.3	A
28	Science policy implementation	5	5	1.2	A
32	Regional Science committee	5	5	1.2	A
35	list potential research	5	5	1.2	A
36	Reduce research barrier	3	4	6.1	A
37	Contract flexibility	5	5	6.1	A
39	Graduate funding	4	3	1.2	A
48	List of OGD/DOE expertise	3	5	1.2	A
58	Earp team concept	5	5	1.3	A
60	Earp in review committees	5	5	1.3	A
62	Earp admin.	3	5	1.3	A
65	Earp working group	5	5	1.3	A
72	EARP requirements PIPs	5	3	1.3	A
82	Audit L/E program	2	5	6.1	A
86	Knowledgeable prosecutors	5	5	1.3	A
104	Communication damage control	5	5	4.4	A
109	Warden Service role	5	5	4.5	A
110	W/S specialist designation	5	5	4.5	A
120	Professional memberships	3	5	4.4	A
121	Conferences and workshops	3	5	4.4	A
127	Working groups - specialists & WRO	5	5	4.5	A
129	Volunteer time by staff	5	5	4.4	A

4.5 RECOMMENDATIONS THAT ARE FUNDAMENTALLY IMPORTANT AND THAT HAVE SUBSTANTIAL BENEFIT WITHIN FIVE YEARS

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
83	Voluntary fines	5	5	6.1	B
74	Priorize resource allocation	5	5	6.1	B
85	Contingency fund	5	2	1.3	B
66	Generic earp guidelines	5	3	1.3	B
63	Earp post reviev	5	3	1.3	B
61	Earp science	5	5	1.3	B
59	Earp specialist	5	4	4.5	B
96	Resource messages id/priorization	5	3	1.1	B
54	Joint DOE training	5	3	1.2	B
50	OGD/DOE advisory role	5	5	1.2	B
46	Regional data mgt function	5	3	1.3	B
34	Regional science management function	5	4	1.2	B
103	Media cooperation	5	3	1.1	B
105	Protection stewardship	5	4	1.1	B
33	Scientific Advisory Forums	5	4	1.2	B
31	Park Consultative forums	5	4	1.2	B
111	Integrate specialization	5	5	4.5	B
112	Establish specialization	5	3	4.5	B
113	WRO field involvement	5	3	4.4	B
114	Rotational development	5	3	4.4	B
115	WRO functional roles	5	3	4.4	B
116	Revise focus	5	3	4.4	B
117	Working staff into reg. integration	5	3	1.4	B
30	Establish peer review	5	5	1.2	B
119	Training plan	5	2	4.4	B
27	Resource management specialists	5	3	1.2	B
24	Protection priorities	5	4	1.3	B
124	Educational leave	5	2	4.4	B
128	Recruitment	5	3	4.4	B
118	Flexible staff	4	3	4.4	B
29	Communicating science info	4	3	1.2	B
91	L/E specialist	4	3	1.3	B
97	Env. education specialists	4	3	4.5	B
98	Increase effective communications	4	4	1.1	B
44	GIS implementation	4	0	1.3	B
43	Data mgt program	4	0	1.3	B
17	Socio-economic input	4	3	1.3	B
77	Expand scope of PCP	4	4	1.3	B
79	Complete RD&A, ARD&A	4	1	1.3	B
126	Curriculum development	4	5	4.4	B

4.6 RECOMMENDATIONS THAT ARE FUNDAMENTALLY IMPORTANT

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
7	Internal pollution regs compliance	2	0	1.5	B
8	Pollution links OGDs	2	2	1.5	B
9	Toxic spill plan	2	3	1.5	B
10	Recycling in park materials	3	1	1.5	B
11	Env. sensitive operation/maintenance	3	1	1.5	B
13	MOU's regional development	3	4	5.3	B
15	Coordinate res. mgt. concepts	3	3	5.3	B
17	Socio-economic input	4	3	1.3	B
21	Promote ecological research	3	4	1.2	B
22	Promote impact research	3	4	1.2	B
24	Protection priorities	5	4	1.3	B
27	Resource management specialists	5	3	1.2	B
29	Communicating science info	4	3	1.2	B
30	Establish peer review	5	5	1.2	B
31	Park Consultative forums	5	4	1.2	B
33	Scientific Advisory Forums	5	4	1.2	B
34	Regional science management function	5	4	1.2	B
38	Research facility support	3	2	1.2	B
40	NSERC liaison	3	5	1.2	B
43	Data mgt program	4	0	1.3	B
44	GIS implementation	4	0	1.3	B
46	Regional data mgt function	5	3	1.3	B
50	OGD/DOE advisory role	5	5	1.2	B
54	Joint DOE training	5	3	1.2	B
59	Earp specialist	5	4	4.5	B
61	Earp science	5	5	1.3	B
63	Expanded Earp	5	3	1.3	B
66	Generic earp guidelines	5	3	1.3	B
74	Priorize resource allocation	5	5	6.1	B
76	Sophisticated zoning	3	5	1.3	B
77	Expand scope of PCP	4	4	1.3	B
79	Complete RD&A, ARD&A	4	1	1.3	B
81	National L/E directive	3	3	3.1	B
83	Voluntary fines	5	5	6.1	B
85	Contingency fund	5	2	1.3	B
91	L/E specialist	4	3	1.3	B
92	L/E advisory forum	3	4	1.3	B
96	Resource messages id/priorization	5	3	1.1	B
97	Env. education specialists	4	3	4.5	B
98	Increase effective communications	4	4	1.1	B
103	Media cooperation	5	3	1.1	B
105	Protection stewardship	5	4	1.1	B
106	Private sector stewardship	3	3	1.1	B

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
107	Resource protection volunteers	3	3	1.1	B
108	Organization principles	3	5	4.5	B
111	Integrate specialization	5	5	4.5	B
112	Establish specialization	5	3	4.5	B
113	WRO field involvement	5	3	4.4	B
114	Rotational development	5	3	4.4	B
115	WRO functional roles	5	3	4.4	B
116	Revise focus	5	3	4.4	B
117	Working staff into reg. integration	5	3	1.4	B
118	Flexible staff	4	3	4.4	B
119	Training plan	5	2	4.4	B
122	Secondments and assignments	3	3	4.4	B
123	Staff instructors	3	5	4.4	B
124	Educational leave	5	2	4.4	B
126	Curriculum development	4	5	4.4	B
128	Recruitment	5	3	4.4	B

4.7 RECOMMENDATIONS REGARDING LINKS WITHIN DOE AND WITH OGDs.

A. RECOMMENDATIONS WHICH DEMONSTRATE CPS LEADERSHIP OR OPPORTUNITY TO MAKE CONTRIBUTION

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
10	Recycling in park materials	3	1	1.5	B
11	Env. sensitive operation/maintenance	3	1	1.5	B
13	MOU's regional development	3	4	5.3	B
19	Ecological integrity criteria	2	3	1.2	C
25	Ecological benchmark criteria	1	4	1.2	D
26	Establish ecological benchmarks	1	2	1.2	D
51	CPS advisory role to OGD/DOE	3	3	1.2	D
52	Speakers forum	3	3	5.3	C
55	Leadership mgt protected lands	1	3	1.5	D
64	Earp communication	2	4	1.3	C
65	Earp working group	5	5	1.3	A
66	Generic earp guidelines	5	3	1.3	B
67	Cumulative impact	3	2	1.3	C
69	Earp panel presentations	3	4	4.4	C
96	Resource messages id/priorization	5	3	1.1	B
105	Protection stewardship	5	4	1.1	B
123	Staff instructors	3	5	4.4	B

B. RECOMMENDATIONS WITH CPS AS RECIPIENT

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
1	Avare of global change	1	3	1.4	D
2	Change implication mgt of resource	1	4	1.3	D
3	Disposal/vaste guidelines	3	1	1.5	C
5	Env. sensitive practices	5	5	1.5	A
7	Internal pollution regs compliance	2	0	1.5	B
9	Toxic spill plan	2	3	1.5	B
28	Science policy implementation	5	5	1.2	A
30	Establish peer review	5	5	1.2	B
31	Park Consultative forums	5	4	1.2	B
33	Scientific Advisory Forums	5	4	1.2	B
68	FEARO training	5	3	1.3	C

C. RECOMMENDATIONS WITH CPS/DOE DEPARTMENTS AS JOINT/COOPERATIVE PARTICIPANTS

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
8	Pollution links OGDs	2	2	1.5	B
21	Promote ecological research	3	4	1.2	B
22	Promote impact research	3	4	1.2	B
25	Ecological benchmark criteria	1	4	1.2	D
26	Establish ecological benchmarks	1	2	1.2	D
42	Coop Resource institutes	2	2	1.2	D
47	Coop data links	2	2	1.3	C
48	List of OGD/DOE expertise	3	5	1.2	A
53	Links with DOE Science Policies	3	4	6.2	C
54	Joint DOE training	5	3	1.2	B
89	Expand L/E perspective	3	4	1.3	C
100	CPS curriculum messages	3	4	1.1	D
122	Secondments and assignments	3	3	4.4	B

4.8 RECOMMENDATIONS WITH OGANIZATIONAL IMPLICATIONS

No.	Recommendation	Benefit	Cost	Rel to Strat Obj	Impl Priority
REGIONAL AND PARK IMPLICATIONS					
58	Earp team concept	5	5	1.3	A
75	Implem costs - plans, directives	2	5	6.1	C
91	L/E specialist	4	3	1.3	B
97	Env. education	4	3	4.5	B
107	Resource protection volunteers	3	3	1.1	B
109	Warden Service role	5	5	4.5	A
111	Integrate specialization	5	5	4.5	B
112	Establish specialization	5	3	4.5	B
122	Secondments and assignments	3	3	4.4	B
REGIONAL IMPLICATIONS					
32	Regional Science committee	5	5	1.2	A
34	Regional science management function	5	4	1.2	B
36	Reduce research barrier	3	4	6.1	A
41	Adjunct professorship	2	3	1.2	D
46	Regional data mgt function	5	3	1.3	B
61	Earp science	5	5	1.3	B
62	Earp admin.	3	5	1.3	A
115	WRO functional roles	5	3	4.4	B
PARK IMPLICATIONS					
27	Resource management specialists	5	3	1.2	B
43	Data mgt program	4	0	1.3	B
110	W/S specialist designation	5	5	4.5	A
114	Rotational development	5	3	4.4	B
128	Recruitment	5	3	4.4	B

5.0 CONCLUSIONS

5.1 Introduction

Most of the recommendations put forth in this report are not new within the CPS or within the venue of national park management. Evaluations conducted by Gordon (1989), Nelson et al. (1987), Lafleur (1987), McTaggart-Cowan (1977), Leopold et al. (1969), and Robbins (1963) all resulted in similar recommendations. In order that this Task Force's findings are not simply added to the list above, with little or no action being taken, there must be a commitment at all levels to implement the recommendations. Many of the recommendations will simply require a change in attitude (e.g. resource protection is everyone's responsibility), while others will require substantial resource allocations.

Additional elaboration has been provided on those recommendations dealing with linkages with DOE services and OGDs and with Human Resource Management.

The 129 recommendations presented in this report all contribute to the challenge of developing credible science and credible resource protection. The following highlights the more significant recommendations and some inter-relationships.

Success in the challenges ahead will be dependent upon committment to addressing all the issues presented.

5.2 Global Change

The issue of global change continues to dominate the international environmental scene. Although there are many theories as to what will happen and to what extent, there is agreement that global change will indeed occur. The CPS must not underestimate the change that may occur (i.e. the substantial transition of vegetation regimes and the expected effects on other ecosystems; refer to State of the Environment newsletter #5 January, 1990). Our interrelationship with other agencies involved in monitoring this change is vital and will be required by the Green Plan.

The CPS must demonstrate leadership in the reduction of internal and external sources of pollution and expand our focus to all facets of pollution. Substantial short term benefits can be realized through adoption of environmentally sensitive practices, introduction of recycling and use of environmentally sensitive products. In the long term, CPS WR must demonstrate its commitment to controlling potential pollution sources through enforcement of regulations, monitoring and development of standards that reflect our unique mandate. These responsibilities are clearly established in the Green Plan.

5.3 Regional Integration

The process of encroachment by incompatible land uses is the largest

single threat to the ecological integrity of the western national parks. A detailed identification of specific threats that will impact on parks is required to re-focus PMPs and PCPs to address these issues. Successful natural resource management must include an understanding of socio-economic factors within and outside the park as well as resource based knowledge (Bio-politics). It is essential to develop processes (such as CRM and MAB) and staff to effectively interface with outside agencies and landowners. It has to be recognized that these processes and relationships will be developed over the long term and that benefits will accrue as the decade proceeds.

5.4 Ecological Integrity and Sustainability

Ecological integrity and sustainability, although not easily defined, are the basis for future park management (our raison d'être). They drive the need, both in the long term and short term, to conduct scientifically based resource management in national parks. The central mandate of CPS can not be achieved nor impacts mitigated unless park managers possess a reasonable understanding of ecosystem structure and function. The CPS must develop workable concepts dealing with ecological integrity and sustainability, develop protection priorities and define limits of acceptable change.

5.5 Science

The cornerstone of the departmental Green Plan is better science. The CPS WR must demonstrate its commitment to the development of science and expanded liaison with the research community. Essential steps are the establishment of a Science Policy and the formation of a Science Advisory Forum. Encouraging research in our parks/sites can be expedited by defining our needs, eliminating barriers that inhibit research activities, simplifying issuance of permits and providing financial support to graduate students. Fundamental to scientific credibility is the establishment of specialists within the Warden Service and initiation of formal peer review. The CPS WR will have to be involved in a range professional forums including publishing in scientific journals and participating in professional meetings.

5.6 Technology

Implementation of the advances in technology, in particular GIS, is essential if CPS WR is to provide timely and effective analysis of resource management data. Although initial investments in hardware, software and data management specialization will appear substantial, in the long run savings will accrue through reduction in overall time spent in data management. The initial investment is not substantial when compared to the investment in the resource baseline data, and the costs of other systems CPS has instituted (e.g. MMS, AFMAS). There is no point in training a pilot if you are not going to buy the plane.

5.7 Relations With Other Government Departments and DOE Services

As in the case of regional integration, improved relationships with OGDs will be achieved over the long term. Through communication, these

agencies will come to recognize us as credible and a basis of trust will be built which will be of value when resolving future difficulties. In the short term the CPS should identify these relationships and involve other agencies in our Science Advisory Forum.

The Task Force has produced numerous recommendations that suggest linkages between CPS and other DOE Services or other government departments. These linkages are sub-divided into three categories: those where CPS WR would be a net recipient of benefits; those where CPS WR could contribute to other DOE services and OGDs; and those which are mutually beneficial.

Eleven specific recommendations suggest areas in which CPS should seek input or contributions from sister DOE Services and OGDs. Generally, CPS would benefit from assistance in developing guidelines for environmentally sensitive practices, obtaining information on certain key issues (e.g. global warming), development of our own science policy and establishment of a range of advisory forums.

Many recommendations suggest areas in which CPS WR can make contributions, or provide leadership and unique opportunities (e.g. for research) within DOE or to OGDs. CPS is an acknovledged leader in the application of EARP and could assist OGDs in the development of their environmental assessment science. Other leadership opportunities for CPS WR include developing search and rescue techniques and expertise, developing strategies and demonstrating leadership in the communication of environmental concerns to the public, fostering stevardship in employees, providing relatively natural areas of land for establishment of ecological benchmarks, conducting ecosystem research and monitoring, demonstrating environmentally sensitive practices in park operations and maintenance, and actively participating in internationally recognised conservation efforts such as Man and the Biosphere, or World Heritage Sites.

There are opportunities for joint participation with DOE services and OGDs that would enhance understanding and protection of natural resources. Most significant of these are the potential to conduct cooperative research into ecosystem function and structure, investigate improved methods of avoiding or mitigating environmental damage, develop multiagency agreements for law enforcement activities (poaching, environmental degradation, intelligence sharing), establish cooperative research units at Canadian universities or within parks, conduct joint training through workshops or secondments, share natural resource databases and build public support for protection and conservation of resources through education and communication.

5.8 EARP

The CPS WR's application of EARP is one of our strengths and has considerable credibility with others. The process at the field can be improved by changing the one man approach to a team approach including other sub-activities, developing a working group to allow expertise to

be more readily shared among other parks, and by ensuring adequate resources are provided within capital projects to provide for full implementation of the process. The development of generic guidelines will also be important. With respect to the consolidation of functional responsibilities within the regional office, this must be approached so as to maintain our strengths. Specifically, our current efforts to develop EARP as a science, and the role as the CPS WR's environmental conscience must be maintained. Don't throw the baby out with the bath water.

5.9 Adminstrative and Management Processes

Current financial resource allocation procedures must be adjusted to include criteria to rank resource protection priorities and to establish their relative priority with other organizational activities. Application of PCPs within western region must be expanded to include O&M activities, address regional integration, establish protection priorities, involve other sub-activities and provide strategies for communication. PCPs will have to be more strategic and integrated with PMPs. The current park zoning system will have to become more sophisticated to enable it to be used as a tool to better protect and manage our resources.

5.10 Law Enforcement

The CPS WR must balance prevention, deterrence and prosecution in its law enforcement activities. Prevention is an information process which includes education regarding regulations, environmental standards and mutual cooperation.

Auditing of our existing law enforcement program and completion of the national law enforcement directive will be the first steps to the establishment of priorities and program direction. Law enforcement activities must be broadened beyond the current focus of wildlife concerns and motor vehicle offences to include other environmental issues such as pollution. Attention then should be turned to the implementation of the voluntary payment of fines and the provision of quality crown prosecution for national park offenses. Escalating and unforeseen court costs will have to be managed in such a way as to not jeopardize other programs.

The establishment of a working group, an advisory forum and law enforcement specialists will expedite credibility and may in the long term reduce our training costs. Our law enforcement program should be proactive and preventative and not just punitive.

5.11 Public Interface

The recommendations address stevardship and communication. In the short term, some improvement of our ability to convey proactive messages associated with crises is needed. In the longer term, focusing on environmental messages will require much stronger relationships between resource conservation and interpretation. Just as science credibility is gained through publication in journals,

public credibility is increased through communication in popular media. The potential for assistance by volunteers in our resource management and protection activities must be realized. An implication of the Green Plan is a shift in emphasis in our public programs towards environmental education.

5.12 Human Resource Management

The Task Force was asked to identify those recommendations which impact on functional responsibilities and organizational structures. Review of the recommendations show that almost all have implications for functional responsibilities.

The report describes a variety of disciplines that should be included within the regional counterpart of a park warden service. These disciplines include, but in the future may not be limited to: resource management, science management, data base management, regional integration, EARP, law enforcement, public safety, and staff development. The following responsibilities should be associated with all of these disciplines within the regional office:

- leadership and credibility within and outside the organization;
- development and transfer of new science and technologies;
- coordination of intergovernmental and interprovincial programs;
- expert consultation supporting park personnel and programs;
- participation in the delivery of research and resource management programs*;
- development of program criteria and priorities;
- maintenance of quality and consistency within the region (e.g. peer review, and periodic audits but not day to day control);
- identification and development of training packages;
- coordination of working groups;
- participatation in Advisory Forums, both within the CPS and externally;
- communication with other professional and scientific communities.

> * The recommendations note that to maintain academic and professional credibility you must remain active in your discipline. This will require that regional staff participate in field programs. This participation must be done in a way which assists in the development of park expertise.

It is perceived both internally and externally, that some programs are working well and meet all the responsibilities set above, however, other programs, such as natural resource management and science management, are not. Checks and balances need to be in place to maintain purity between the responsibilities of park and regional personnel. Clear direction from senior management, links between regional and park goals, and managerial accountability for achieving those goals are examples of such checks and balances. The regional Strategic Plan, the Reality Document, and Human Resource Management Strategies are important mechanisms in this regard.

Absent in the above list is clerical and administrative responsibilities which should be delegated to parks (e.g. issuance of permits), and the resource management planning function which would be best integrated into Planning.

Science as it pertains to the management of natural resources will be coordinated by, and be fully integrated into, the existing Warden Service at the park level; it will not become a separate entity. A specialist is someone who spends more than 70% of their time in one of the three functions - law enforcement, public safety or resource management. Depending on the needs of the park, a resource management specialist may be a person with broadly based expertise or may be discipline specific (e.g. fisheries biologist, archaeologist). In some cases, a resource specialist residing in one park may have responsibilities in other parks.

The essential first step in the implementation of Warden Service specialists is to proceed with that portion of recommendation #127 calling for a comprehensive human resource plan addressing the establishment and staffing of specialist positions. At the same time, the strategy for implementing improvements in regional functional responsibilities should be developed. The assignment to implement recommendation #127 should be given to representatives of the park warden service, functional and human resource management staff.

Implementation of an expanded concept of training and the establishment of a multi-staged recruitment and selection process is essential to develop personnel to fulfill future CPS WR needs.

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APPENDIX A: TERMS OF REFERENCE

SCIENCE AND PROTECTION TASK FORCE

WESTERN REGION

TERMS OF REFERENCE

Background

The Regional Management Committee (RMC) of Western Region is establishing two short-term task forces. One will examine issues in the area of natural resource management; the other, cultural resource management. They are tasked with developing recommendations to the RMC regarding long-term (5 to 10 year) direction to ensure we meet our mandate and regional strategic priorities.

The task force is composed of Western Region staff from a variety of areas and backgrounds. They will be consulting with other CPS staff within the region and headquarters, and individuals outside the agency, to ensure all interests are represented.

Tasks

1. Describe the anticipated challenges relating to natural resource research, natural resource management and natural resource protection that will face CPS Western Region in the mid to late 1990's.

The following would be taken into consideration -

environmental agenda
environmental scan
input from scientific community
input from other land management agencies
park input into the State of the Parks Report.

2. Define CPS Western Region's future role as it relates to

- the development of science required for the management of national parks,
- the application of science in the management of national park natural resources,
- the use of national parks as ecological benchmarks and as sites for the conduct of natural resource related research, and
- the protection of national park natural resources.

Issues to be considered include:

science policy required
provide context of national, regional, and local model
CPS policy

need to demonstrate leadership
existing directives
C. Arnold's work
strategic plan
priorities
park zoning
the need for research staff is dependent on the support and availability of other agencies
Science councils, University study units (USNPS).

3. Define internal and external relationships, organizational models, resourcing levels, and infrastructure required to implement the roles described above.

Issues include:

types and levels of resources
internal organization
linkages with outside
what do we do in house and what do we buy
reviev existing processes
- NRMP as applied in Western Region
- recruitment
- training
- EARP
- Management Planning Process

legislation
previous exercises e.g. Sime Schuler
use of local volunteers in resource management exercises
environmental messages (linkages with People and Park Interface)

4. Propose a schedule and framework for implementation.

Level of Detail

The Task Force should address the above tasks at a broad conceptual level of detail, identifying objectives and models that would be useful to the organization as a whole and generally applied to all parks. Although examples of how the concepts could be applied to a park or specific issue will be useful, it is not the intent of proposing recommendations specific to any one park or addressing any one park's resource issues.

Organization

The task force which will operate out of the Calgary regional office, will be chaired by a Park Superintendent (C. Zinkan) who will commit three days a week to the assignment. In addition three task force

members will be assigned on a full-time basis to the project. Three additional task force members will be called to provide specific input on topics. The input of the additional members would be less than two weeks each.

An Advisory Committee will meet periodically with the task force to discuss concepts, issues, etc.

The Chairman will be responsible for the supervision of the task force and expenditure of funds provided by the Regional Director General to support the task force.

Stenographic support as needed will be provided by Georgina Frazer, Secretary, Interagency and Community Affairs. DOTS support and work space will be provided at WRO.

Task Force Members (full-time)

- Gail Harrison, Natural History Research, WRO
- Alan Westhaver, Warden Service, Elk Island National Park
- Darro Stinson, Warden Service, Jasper National Park

Additional support members (as required)

- D. Martin, Natural Resource Conservation, WRO (law enforcement) (up to two weeks)
- G. Webber, Interpretation, WRO (linkages with environmental education) (up to four weeks)
- C. Arnold, Senior Management Advisor, ADM's office (input of HQ initiatives)

Proposed Advisory Committee

- B. Leeson, Chief, Natural History Research, WRO
- D. Macmillan, Chief, Natural Resource Conservation, WRO
- R. Haney, Chief Park Warden, Banff
- A. Sturko, Chief Park Warden, Waterton
- G. Fortin, Superintendent, Jasper National Park
- D. Bowes, Director, Strategic Management, WRO

Schedule

The task force will convene in Calgary on January 8 and will conclude on or before March 21. The task force will make a presentation of the report to the REC on or before March 21. RMC review of the report will be concluded during the April RMC. If necessary the task force will then be re-convened for several days to make necessary editorial changes.

The task force will meet with the Advisory Committee on two occasions. The first meeting will be to discuss the general approach and proposed

content and will be held on the afternoon of Jan. 17. The Advisory committee will meet again immediately after or before the strategic planning forum scheduled in the last week of February to discuss the task force draft conclusions.

Consultation with the Department and Outside Agencies

Given the time limitations consultation with others, outside the region will be limited to the following

- HQ staff e.g. Resource Conservation staff developing the environmental agenda and Caroline Arnold

- other DOE Services and other federal departments e.g. CFS, Agriculture Canada, Inland Waters, CWS,

- universities e.g. U of C - S. Herrero, B. Reeves; U of Waterloo - G. Nelson, G. Priddle, S. Woodley; U of A - Bill Sammuels, Jim Butler

- USNPS - Glacier National Park

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APPENDIX C: RESOURCE CONSERVATION BUDGETS

89/90, % of $ dedicated to the Resource Conservation sub-activity

PARK	% of SALARY\O&M	% of SALARY	% of O&M
SOUTH MORESBY	22	26	18
YOHO	13	13	12
MT.REVELSTOKE\GLACIER	9	9	8
KOOTENAY	13	12	17
PACIFIC RIM	15	17	8
WATERTON	13	13	11
JASPER	21	23	18
ELK ISLAND	23	21	32
BANFF	16	18	11

NOTE: When revieving these figures it must be kept in mind that certain types of expenses (e.g. trail maintenance) are allocated to Resource Conservation in some parks and not in others. These figures do not include the contribution of other sub-activities to resource management and protection. But two things are evident - only a small amount of our resources goes to our primary mandate, resource protection; and there is no consistency in budget allocation from park to park.

APPENDIX D: LIST OF STRATEGIC OBJECTIVES

1.0 Enhancing Science Through Protection

1.1 Promote the philosophy of stewardship with the public and CPS staff.

1.2 Strengthen the scientific program to ensure the protection of park resources.

1.3 Ensure effective decision making that achieves protection of the park ecosystem.

1.4 Be proactive in our response to future threats to park resources.

1.5 Carry out all aspects of our work in a manner that exemplifies our regional values, sound environmental practices, principles of sustainable development, and contributions to science.

2.0 Increasing the profile of cultural and historic resources

2.1 Stimulate public and staff interest, support, and involvement in the identification, protection, and presentation of cultural and historic resources.

2.2 Strengthen our cultural and historic resource protection presentation program.

2.3 Clearly integrate the Western Regions role and responsibilities in the protection and presentation of cultural and historic resources with those of other organizations in similar businesses.

2.4 Maximize the potential of existing national historic parks and sites, and the nationally significant cultural and historic resources in national parks, within existing economic realities.

3.0 Balancing The Parks and People Interface

3.1 Appropriately manage the type and level of visitor use in parks.

3.2 Maintain the high standards of visitor satisfaction provided by us and others.

3.3. proposed objective regarding quality facility service and maintenance

4.0 Building Staff Excellence

4.1 Create a work environment characterized by openness, trust, respect

for the individual, job satisfaction.

4.2 Foster a sense of stewardship for the achievement of the Western Region's mission, and a sense of the value of each employee in reaching that mission.

4.3 Demonstrate leadership in achieving employment equity and official languages objectives.

4.4 Provide for and encourage training and development opportunities that foster excellence, support the achievement of the Western Regions mission and develop the full potential of employees.

4.5 Attract and effectively deploy staff resources to realize the Western Region's mission.

5.0 Gaining support through partnership

5.1 Enhance public understanding and support of the CPS in general and the Western Region in particular.

5.2 Establish and maintain programs and mechanisms to encourage the support and participation of others in the CPS program.

5.3 Foster positive relations with other agencies and local governments responsible for the management of lands adjacent to National Parks in order to gain support and cooperation for our mandate.

6.0 Streamlining systems and processes

6.1 Ensure that the systems and processes we use are streamlined in order to be effective in supporting the Strategic Plan.

6.2 Ensure that all of our programs and activities are managed in such away that they support the Strategic Plan.